DENDROBIUM SPECIOSUM.—Specimen plant (*see page* 351).

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ORCHID REVIEW

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DEVOTED TO ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S.

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TO

OSWALD O. WRIGLEY, Esq.

BRIDGE HALL, BURY,

AN ENTHUSIASTIC AND HIGHLY SUCCESSFUL

AMATEUR OF ORCHIDS

FOR A PERIOD OF

OVER HALF A CENTURY,

THIS TWENTY-FOURTH VOLUME OF THE "ORCHID REVIEW"

IS CORDIALLY DEDICATED.

Kew,
December, 1916.

The Orchid Review

VOL. XXIV. JANUARY, 1916. No. 277.

OUR NOTE BOOK.

ANOTHER year passes to its close, and its annals are beclouded with the tragedy of a great war—a legacy from its predecessor—which is leaving its mark on Orchidology, as on every other branch of the peaceful art of horticulture, perhaps more deeply than we are yet able to realise. In this country a large number of young men have joined the ranks of His Majesty's forces, with the result that there is a great shortage of labour in many establishments, and a corresponding curtailment of all activities except those that are absolutely necessary, while in the countries of the allies, not only has there been a general call to the colours, but some sterner tragedies have been enacted. How far Orchid collections in Belgium may have suffered we are unable to say, for the ordinary sources of information are closed, but we may recall the fact that a French collection of Anœctochili—that of M. Alfred le Gentil—was completely destroyed during the bombardment of Arras.

HORTICULTURAL MEETINGS.

The meetings of the Royal Horticultural Society and of the Manchester and North of England Orchid Society have been held as usual, and with scarcely an exception have produced good displays of Orchids, though it would be idle to pretend that they have been unaffected by the abnormal conditions, and amateur exhibits—particularly those from a distance—have shown a marked falling off in point of numbers. The big Shows at Chelsea and Holland House were up to their old standard in point of quality, though a little reduced in extent, and one can easily imagine what a normal year whould have produced. A projected Autumn Show was necessarily abandoned until some more favourable opportunity. The Société Nationale d'Horticulture de France has resumed its activities by holding a monthly meeting, but a glance through the reports shows that the Orchids exhibited were very few in number, though they included several very interesting novelties.

CERTIFICATED ORCHIDS.

There has been a further decline in the number of Orchids that have been certificated by the R.H.S. during the year, the list including twenty-eight First-class Certificates and fifty-six Awards of Merit. Those that gained the higher award comprise eight Cattleyas, six Odontoglossums, four Læliocattleyas, three Brassocattleys, and two each of Odontioda and Cypripedium, while Catasetum, Dendrobium, and Sophrocattleya have each a single representative. Cattleya displaces Odontoglossum for the first place, while Miltonia, which was second last year, has dropped out altogether. In the list of Awards of Merit we find fourteen Læliocattleyas and thirteen Cattleyas, these genera having maintained their positions; then follow six Odontoglossums, Cypripedium and Odontioda with five each, Brassocattleya with four, and Cymbidium with two, while Bulbophyllum, Dendrobium, Disa, Miltonia, Sophrocattleya and Vanda have each a single representative. Hybrids were more than ever to the front, for only five out of the above list were imported plants, and of the remainder as many as thirty-four were generic crosses. A Certificate of Appreciation was awarded to Messrs. Armstrong & Brown for Odontioda Armstrongii var. Peerless, and the new Seedling Commendation, instituted in September for promising seedlings that are at present undeveloped, was awarded on four occasions. We note with regret that several of the hybrids mentioned above appear in the list of "parentage unrecorded."

CULTURE.

Only five Cultural Commendations have been awarded, but this was probably due to the abnormal conditions of the year, for there has been little inducement to bring specimen plants to the meetings. The Lindley Medal for culture, however, has been awarded on three occasions, to Messrs. Armstrong & Brown for an altogether exceptional specimen of Cœlogyne pandurata, shown at the Chelsea Show, to J. Gurney Fowler, Esq., for Odontoglossum Georgius-Rex, shown at Holland House, and to Messrs. Sander & Sons for the magnificent specimen of Vanda Sanderiana which was figured as the frontispiece of our last volume.

NOVELTIES.

Novelties of merit among imported Orchids seem to be increasingly difficult to find as years go on, but in Cypripedium Curtisii Sanderæ Messrs. Sander & Sons have introduced a very distinct and beautiful albino, that was deemed worthy of a First-class Certificate by the Orchid Committee of the R.H.S. It appeared as a single plant in a batch of imported C. Curtisii, and was exhibited bearing three finely-developed flowers. They also received an Award of Merit for Vanda luzonica, a beautiful Philippine species that, so far as we know, has not previously flowered in Europe. It was figured at page 137 of our May issue from a

plant that flowered in the collection of Hugh Dixon, Esq., of Sidney, about a year earlier. Bulbophyllum Balfourianum is a remarkable New Guinea species, allied to B. Fletcherianum, and with similar glaucous leaves, that also received an Award of Merit. Cypripedium papuanum is a curious species of the C. javanicum set that was introduced by Dr. Wollaston during a recent expedition to New Guinea, and flowered in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle. Angræcum birrimense is an interesting West African species, allied to A. Eichlerianum, that flowered at Kew about three months ago. Listrostachys Brownii, a Uganda species described a few years ago, flowered in the Royal Botanic Garden, Glasnevin. Among species chiefly of botanical interest there are several that have not yet been described.

HYBRIDS.

It is to the hybridist that we now chiefly look for a constant stream of sterling novelties, and in this respect 1915 has probably been up to the average, though a somewhat reduced number have been shown, owing to the abnormal conditions. One of the most brilliant acquisitions of the year was unquestionably the beautiful Cattleya King-George (triumphans × Dowiana Rosita), shown by Messrs. Flory & Black, while C. Lady-Veitch, raised by Messrs. Sander from albino forms of C. Lueddemanniana and C. Warneri, and figured at page 329 of our last volume, is another gem. Both gained First-class Certificates in October last. The same award went to Dendrobium Triumph (pulchellum × thyrsiflorum), shown by J. Gurney Fowler, Esq., to Odontioda Colmaniæ, a brilliant deep yellow and scarlet hybrid from Sir Jeremiah Colman, Bart., and to Læliocattleya Alex (Lc. Tunis × C. Dowiana aurea), from Messrs. Stuart Low & Co. Other First-class Certificates were carried off by brilliant varieties of previously-known hybrids, and among these we must not omit to mention Cypripedium Christopher var. Grand Duke Nicholas and C. Pyramus Chardwar var., shown by F. G. Moore, Esq., at the first meeting of the year.

Among the novelties that gained Awards of Merit we may mention the beautiful Læliocattleya Fascinator-Mossiæ var. Moonlight and Odontioda Aphrodite, from Messrs. Charlesworth & Co.; Disa Blackii, Cattleya Olympus, and Læliocattleya Nena, from Messrs. Flory & Black; Læliocattleya Gold-Star and Lc. St. Alban, from Messrs. Sander & Sons; Cattleya Ashtoniæ alba, and C. Ajax Primrose Dame, from Messrs. Armstrong & Brown; Cattleya Paula, Læliocattleya Helius, and Sophrocattleya Pearl, from Messrs. J. & A. McBean; and Cattleya Moira rubra from Messrs. Hassall & Co., but there were a good many others, including some fine varieties of the older hybrids. Of seedlings flowering for the first time, in some cases undeveloped, a large number have been recorded in our pages,

which it would take too long to summarise. Among promising albino Cattleyas, however, we may mention C. Williamsiæ alba (Gaskelliana alba × Harrisoniana alba), C. Snow-Queen (Gaskelliana alba × Suzanne-Hye), and C. Evelyn-Sander (Trianæ alba × Dusseldorfii Undine). A good many others have flowered but have not been exhibited, and any falling off in numbers may be attributed to the abnormal conditions of the year. In this department of Orchidology the effects of the war are more likely to be felt later on, owing to the great activity of recent years and the time that Orchid seedlings take to reach the flowering stage.

LOSSES DURING THE YEAR.

Several distinguished Orchidists have passed away the during the year, including Lord Rothschild; M. Jules Hye de Crom, whose death may be regarded as one of the tragedies of the war; Mr. J. C. Harvey, whose account of Orchid culture in South Mexico was the feature of our January issue (pp. 12-18), but which, sad to say, he did not live to see in print; Dr. O. N. Witt, M. Louis Forget, one of the most successful Orchid collectors of the day, whose portrait was given in our September issue, together with Cattleya Victoria-Regina, one of his most interesting discoveries; Mr. George Hunter, a member of the R.H.S. Orchid Committee; Mr. F. W. Ashton, a prominent member of the Orchid trade; the distinguished botanists Mr. F. M. Bailey and Dr. J. Medley Wood, whose connection with the Orchids of their respective colonies has been recorded in our pages; Mr. F. W. Harvey, Editor of *The Garden*; Edwin Lonsdale, an American horticulturist whose connection with Orchidology is the subject of a note on the following page; and while this article is being written we regret to hear of the death of Mr. H. Whateley, of whom an Obituary notice is given at page 18. We also regret to see in the list of our French allies who have fallen in the war the name of a son of M. Belin, President of the Sociétié Nationale d'Horticulture de France.

THE FUTURE

is in the lap of the gods. Many of our younger Orchidists are away fighting in the cause of freedom, and those who remain are making a brave attempt to carry on under existing difficulties, keeping a warm place in their hearts for absent friends, and fully assured of a return to prosperity when the present tragedy is over. And the claims to sympathy and help of the ruined horticulturists in the devastated countries of our allies are not being overlooked, for a War Relief Fund has been inaugurated, headed by a donation of His Majesty the King, and widely supported, which will be available when the proper time comes, and that it will come we have the utmost confidence, when all must unite to secure the blessings of an enduring peace, under which alone horticulture and the peaceful arts can attain their full development.

CYPRIPEDIUM SANDERIANUM.

THE statement quoted in the *Orchid Review* (xxiii. pp. 306, 330) from the Obituary notice of the late Mr. E. Lonsdale, as printed in the *Florist's Exchange*, of New York, that Mr. Lonsdale was the introducer of Cypripedium Sanderianum, is, of course, easily disproved, but it may be interesting to give the facts on which the erroneous report was clearly based.

In the autumn of 1892 Messrs. Sander held an auction in New York (at which the writer was present) of the newly-introduced Cattleya labiata under its real name. Mr. Lonsdale was not present, but sent to the rooms a plant of one of the then quite new yellow forms of C. insigne for an opinion, and possible sale. C. insigne Sanderæ had flowered a year previously in the F. L. Ames collection, and had been exhibited in Boston, and it was a question to be decided what the variety submitted by Mr. Lonsdale really was. Mr. A. Dimmock was conducting the sale for Messrs. Sander, and he at once said the plant was C. insigne Ernestii, there being very distinct spots on the dorsal sepal, with practically no coloration. It was certainly not C. insigne Sanderæ nor C. i. Sanderianum. There were several flowers on the plant at the time of exhibition. The subsequent history of the plant is obscure, and the lapse of years seems to have made possible the mixing of names which do not correspond with the records. The above is submitted with the hope of clearing the matter up, and also attesting to the enthusiasm of the late E. Lonsdale as an Orchid cultivator, who, if with us, would certainly not lay claim to that which did not belong to him.

E. O. ORPET.

Walden, Lake Forest, Illinois, U.S.A.

[We thank Mr. Orpet for this interesting note, which shows that the record arose through some inexplicable blunder. It is now quite clear that Mr. Lonsdale's plant could not have been found in an *imported* batch of C. Lawrenceanum. Mr. Orpet's description tallies well with C. insigne Ernestii, which appeared about that time. It would be interesting to trace what became of Mr. Lonsdale's plant.—ED.]

CATTLEYA SIGURD.—I notice that the hybrid from Cattleya Dowiana × C. Enid (a synonym of C. Adonis) is called in England C. Luegeæ. I raised and flowered the same hybrid some years ago, and named it Cattleya Sigurd, and it received a Certificate de Merite at Paris on October 10th, 1912.

Brunoy, France. CH. MARON.

[From the report of the meeting (*Journ. Soc. Nat. Hort. France*, 1912,

p. 625) we learn that the hybrid flowered for the first time in October, 1910, from seed sown in March, 1904, but we do not find an earlier record. It is not included in the reports of the meetings of October 13th and 27th, 1910, and was probably not exhibited. In any case C. Luegeæ is earlier, as it was exhibited at Manchester on January 6th, 1910, by J. McCartney, Esq., receiving an Award of Merit, and in London by Messrs. Charlesworth & Co., on February 8th and September 27th, receiving an Award of Merit on the latter occasion (see *O.R.*, xviii. pp. 57, 84, 312.—ED.].

DENDROBIUM FALCONERI.

A FIGURE of a good specimen of Dendrobium Falconeri appears in a recent issue of *Horticulture*, accompanied by a note from Mr. H. A. Barnard among some photographs taken by Mr. M. J. Pope, Orchid grower to Mrs. Tuttle, Naugatuck, Conn., U.S.A., was one of Dendrobium Falconeri, which is described as a magnificent specimen, exceedingly well flowered, one such as is not often seen. And Mr. Barnard adds:—

"It carried me back in memory some fifty years when I first saw this lovely variety. It was a plant sent to Messrs. Low, then at Clapton, from Sir William Marriott, Bart., Down House, Blandford. This plant was carefully packed in a box standing upright, and as soon as the cover was removed there it stood in all its glory, and I have never seen a Dendrobium more beautiful, the bright crimson purplish tips making a striking contrast to the red base of the flower. D. Falconeri giganteum has, perhaps, finer and more substantial-looking flowers, but misses the graceful charm of the original type. I have seen perhaps as many Dendrobiums as most people, but none have made so lasting an impression on my mind as good old D. Falconeri. Mr. Pope seems to have got the knack of growing it well. From what I have seen and from what my old friend Boxall, who collected thousands, told me it seems to want keeping very cold during the resting season and then to be put into sharp heat, when it will flower well, otherwise it goes into growth."

[One of the finest specimens that we recall is recorded at page 256 of our first volume. A photograph was sent by Dr. Hodgkinson, The Grange, Wilmslow, representing a recently-imported plant in his collection, bearing 158 flowers, most of them over three inches across. It has always been difficult to cultivate, but Mr. Burberry recorded a plant that increased in size year by year when grown on the stem of a living tree fern, and kept in a greenhouse temperature the whole year round. The late Mr. James Cypher recommended a moist, shady position in greenhouse temperature during the summer, and a cool dry rest in winter, to mature the growths.—ED.]

CATTLEYAS AND CUSTOMS DUES.

BRITISH Orchidists are happily not troubled with disputes about customs dues on imported Orchids, but the following note from *Horticulture* for November 27th (page 706) shows some of the possibilities of United States laws:—

Cattleya bulbs which have already flowered and produced leaves are admissable as imports free of duty as bulbs for propagating purposes, according to a decision of the United States Court of Customs Appeals. An importation consigned to Maltus & Ware, reported by the appraiser of customs at New York to be Orchid plants, was assessed at 25 per cent. *ad valorem* as Orchids. The importers protested that the goods were not Orchids, but they were mature mother bulbs, imported exclusively for propagating purposes. This protest was overruled by the Board of United States General Appraisers and the case carried to the Court of Customs Appeals. It was shown by the evidence that while strictly speaking the merchandise in question was not what is botanically known as "bulbs," yet the method of propagating was such as to bring it commercially within that meaning. The Court did not decide whether Cattleya bulbs which have not yet flowered are entitled to free entry under the proviso to paragraph 210.

LÆLIOCATTLEYA LUMINOSA SPORT.—A remarkable inflorescence of Læliocattleya luminosa is sent from the collection of R. W. Rickards, Esq., The Priory, Usk, in which the lip of the lowermost of three flowers has a pair of large clear yellow eyes in the throat, recalling the lip of Cattleya Warscewiczii. The resemblance is striking, but it is difficult to offer an explanation. There is, however, a curious gradation in colour between the three flowers. In the uppermost the sepals and petals are entirely dark flame colour, while in the second the flame colour chiefly appears in the upper third, with some marbling of the same about the middle, the base being nearly yellow. The lower flower is rather smaller, and the yellow extends quite to the middle, the flame colour being chiefly on the upper third. The two upper flowers are very finely developed, and the colour of the lip very rich. The lower flower would be called a variety if it had appeared on a separate plant. It cannot be called a reversion, unless by any chance the C. Dowiana plant were not pure. Such a reversion might appear in the lip of Lc. Haroldiana, where the Cattleya parent was C. Hardyana, though we do not remember to have seen it. It will be interesting to note the future behaviour of the plant.

WINTER-BLOOMING CYPRIPEDIUMS.

WE have recently been told that Cypripediums are a little out of fashion. Such an impression might be formed by a visit to one of our big summer Shows, when Odontoglossums and the brilliant Cattleya group appear in such overwhelming numbers, but during the dull season Cypripediums come into their own again. The reason for this popularity is not far to seek. They are easily grown under warm greenhouse conditions, very floriferous, and their flowers last long in perfection, and have a fog-resisting quality possessed by few other Orchids, which is a matter of the highest importance in localities where winter fogs are prevalent. They also bloom at a time when flowers are scarce, and their quaint shape and the exquisite beauty of the markings in many cases compensate for a little want of brilliancy of colour. We have heard them called studies in green and mahogany, but there is also plenty of white and yellow, and more brilliant colours are not entirely lacking. In short, they possess a combination of qualities that render them the Orchids par excellence for the beginner and the small amateur, besides being extensively grown in most of the larger establishments.

The qualities of this particular group are largely due to C. insigne, probably the most easily-grown of all Orchids, and correspondingly popular. It fully merits the remark made by Messrs. Veitch that it is one of the most useful horticultural plants ever introduced, and at the same time one of the easiest to cultivate. We have seen it thriving in an ordinary greenhouse, and Mr. F. Boyle has recorded that he once looked into a show of window-gardening in the precincts of Westminster Abbey, and among the plants there, treasures of the poorest, he found a Cypripedium insigne—very healthy and well-grown, too. And speaking of a house of them in flower, he remarked: "The spectacle is as pretty as curious when hundreds are open at once, apple green, speckled with brown, and tipped with white." And he adds: "But to my taste, as a grower, the sight is pleasant at all seasons, for the green and glossy leaves encircle each pot so closely that they form a bank of foliage without a gap all round." And we may cite a more recent example, for an amateur friend has just written: "I saw a magnificent sight ten days ago. One longish house with 250 pots of C. insigne Sanderianum, best robust type, all in bloom on one side of the house—in one case with two flowers on a stem—and nearly the same number of C. insigne Harefield Hall var. opposite. They are grown nearly as cool as Odontoglossums." We can easily imagine the effect of such a mass of flowers.

C. insigne has been continuously cultivated in this country ever since 1820, in the autumn of which year it flowered in the Liverpool Botanic Garden, the plants having been sent home a few month previously by Dr. Wallich, who originally discovered it in Sylhet. The descendents of the

Fig. 1. C. LEEANUM GIGANTEUM (four flowers). 2. C. INSIGNE ERNESTII.
Fig. 3. C. SPICERIANUM. 5. C. ARTHURIANUM. 7. C. INSIGNE SANDERÆ.
6. C. NINOS.
Fig. 4. C. TITYUS.

original plants are still grown, though they have to a large extent been superseded by finer varieties selected from the large importations of the last twenty-five years. A flower of the old type may be seen in fig. 10 (p. 12), where one of the flowers of the freak variety Oddity has reverted to the

normal form. The number of varieties now known is very great, but the variation is chiefly limited to the size and number of the brown spots, the relative proportions of green and white, and the general size of the flower, the culminating point in this respect being reached in the Harefield Hall var., also known as var. giganteum (see *O.R.*, xix. p. 9. fig. 1). The variety Maulei, which was introduced by Messrs. Henderson & Son, in 1855, was probably the earliest of them, but punctato-violaceum was described soon afterwards. Their most distinguishing character is that the uppermost

Fig. 8. C. INSIGNE SANDERIANUM.

blotches are clear purple in colour, resulting from their extension into the white area, or the shrinkage of the green ground colour, for the spots that appear on the green area are invariably brown, representing the combination of green and purple.

The advent of a yellow variety some twenty-seven years ago gave an immense impetus to the popularity of this useful species. This was var. Sanderæ, which appeared quite unexpectedly in Messrs. Sander's establishment at St. Albans in 1888, among a lot of imported plants. The absence

of colour from the scape was noticed, and when the flower expanded its beautiful yellow colour caused quite a sensation. The usual blotches are here reduced to a few small brown spots (see p. 9, fig. 7). It has an excellent constitution, and has been extensively propagated, being now represented in every collection of note, in some cases in quantity. Var. Sanderianum (see p. 10, fig. 8), appeared with Messrs. Sander a few years later. It has a shorter, broader dorsal sepal than Sanderæ, without any brown spots, but there are a few brown hairs at the base of the petals.

Fig. 9. C. INSIGNE LAGERÆ.

Var. Ernestii (see p. 9, fig. 2) soon followed, a plant being exhibited at the R.H.S. meeting held on November 14th, 1893, from the collection of R. I. Measures, Esq., Camberwell, together with var. Sanderæ. The ground colour is yellow, but the blotches of the dorsal sepal are present, though very light in colour, and they extend into the white area as very light purple markings. (See also p. 5). Several other yellow varieties have since appeared, differing somewhat in shape and colour, but none, we believe, quite equal to the original ones in decorative value. C. insigne Sanderæ has been self-fertilised, giving a batch of yellow seedlings, and including forms both with and without brown spots (*O.R.*., xviii. p. 320).

There is a third, rarer type of C. insigne, characterised by the blotches on the dorsal sepal being confluent into one large brown area, as in the variety Bohnhofianum, whose history was given in vol. ii. pp. 40, 98, of which the dorsal sepal is chestnut brown in its basal half, followed by a broad green zone, and this again by a broad white margin. To this type belongs var. Lageræ (p. 11, fig. 9), which flowered with Messrs. Lager & Hurrell, New Jersey, about seven years ago. In this case the dorsal

Fig. 10. C. INSIGNE ODDITY.

sepal was described as reddish dark brown, slightly suffused towards the edges with greenish yellow, and with four or five rose purple marks at the extreme upper part of the blotch, the whole being encircled with a pure white band.

The variety Oddity (p. 12, fig. 10) is a freak rather than a variety proper, as is proved by its occasionally producing a flower of the normal form, as in the plant figured. Its peculiarity is due to the petals being modified into a pair of additional lips, which clasp the normal lip, and the

character is correlated with the absence of the two normal anthers, or rather to their being confluent with the petals. The variety originally appeared in the collection of W. M. Appleton, Esq., Weston-super-Mare, over twenty years ago, and its permanence has long been proved.

The great extension in the number of winter-blooming Cypripediums is primarily due to the crossing of C. insigne with the allied species and their derivatives, and may be said to have begun with C, Arthurianum (p. 9, fig. 5), which was raised by Messrs. Veitch from C. insigne × Fairrieanum, and flowered for the first time in 1874. Four years later they added C. nitens (villosum × insigne Maulei), and after an interval of six years C. Leeanum (insigne Maulei × Spicerianum) followed. C. Spicerianum (p. 9, fig. 3) had only been described five years previously, and its possibilities as a parent were at once seen. This particular cross has been many times repeated, and shows much variation, and C. Leeaum giganteum (p. 9, fig. 1) is an improved form which was raised by Messrs. Heath & Son and flowered in 1890.

Besides the crosses with C. insigne direct, the allied species have been crossed between themselves, giving C. Lathamianum (Spicerianum × villosum), C. Niobe (Spicerianum × Fairrieanum), C. Schlesingerianum (insigne × Boxallii), and several others, and these have been again united with C. insigne and its hybrids. Thus, C. Spicerianum × Arthurianum produced C. Minos (p. 9, fig. 6), and C. Spicerianum × nitens Hyeanum gave the large and polymorphic series classed under C. aureum, while C. Leeanum × Boxalii yielded another varied assemblage classed under C. Hera (see *O.R.*, xi. pp. 71-73, fig. 16-18). The list could easily be prolonged.

A much-needed accession of colour was given by utilising some of the summer-flowering species, or their hybrids. For example, C. Harrisianum (barbatum × villosum), the first hybrid in the genus, was crossed with C. insigne Maulei, producing C. œnanthum, which flowered as early as 1876, and this in turn was crossed with C. Spicerianum, giving C. Tityus (p. 9, fig. 4), which may be a form of the earlier C. Figaro, though the parentage of that is said not to have been certainly recorded. C. œnanthum, besides being very attractive in itself, has been a very useful parent, for, united with C. nitens, it gave C. triumphans, in 1893, with C. insigne, C. Milo, in 1894, and with C. Fairrieanum, C. Baron-Schröder, in 1896, and somewhat later its handsome varieties Germaine Opoix and Gaston Bultel. Again, C. Baron-Schröder × insigne gave C. Thalia, another very handsome hybrid.

One might follow other lines of development. For example, C. Leeanum re-crossed with C. Spicerianum produced C. Bruno, and with C. insigne gave the variable C. Simonii, better known under its later name of C. Actæus. When C. insigne Sanderæ was used with C. Leeanum the result was a very beautiful yellow form, known as C. Actæus Bianca. C. Actæus

crossed with C. insigne Sanderæ gave the yellow C. San-Actæus, and this again united with C. insigne Sanderæ gave C. Sanacderæ, another fine yellow form. C. insigne Sanderæ, on the whole, has been disappointing as a parent, owing to reversion, but crossed with C. Fairrieanum it gave C. Arthurianum var. Sanderæ, in which the markings are decidedly yellow, producing a very pretty effect. And at the last R.H.S. meeting Messrs. Charlesworth & Co. exhibited C. Marica (aureum Surprise × insigne Sanderæ), a fine yellow hybrid, which is described at page 19. On the other hand, C. insigne Sanderianum crossed with C. Maudiæ gave a batch of seedlings entirely without brown spots, namely C. Rossetti (*O.R.*, xvi. p. 265, fig. 34), and the result came as a surprise, because C. insigne Sanderæ × Maudiæ had previously given coloured seedlings.

Some improved forms of existing hybrids have resulted from the use of the fine C. insigne Harefield Hall var. as a parent, for example, C. Arthurianum langleyense, but we will not enumerate them, as enough has been said to show how, in the main, the race of winter-blooming Cypripediums has been produced. Other hybrids might have been included, but they are either less common or less strictly winter-bloomers, the latter character chiefly due to the influence of summer-blooming kinds in the ancestry, Of the majority, C. insigne is in some way concerned in the parentage, which at once accounts for the ease with which they can be grown, the time of blooming, and the predominance of green and brown in the colouration of the flowers. It is in the latter respect that there is most room for improvement, and we have little doubt that this is gradually being effected by continued hybridisation and selection. We invite suggestions as to the lines on which such improvements might most usefully be attempted.

ORCHIDS AT THE PANAMA EXHIBITION.—It will interest Orchid lovers to know that the Philippine collection of Orchids exhibited by the Philippine Government at the Panama-Pacific International Exhibition, San Francisco, California, has been awarded the Grand Prize, the highest award, by the superior jury of the Exhibition. I may state that about ten million people have visited the Orchid house, which has been a great centre of interest, as people have been able to see the plants in the growing stages. We have had a good display of flower all the time, and there has never been less than 250 plants in bloom, so there has always been something of interest for visitors to see. I may add that the collection is to be sold at the close of the Exhibition.—W. E. EGLINGTON.

[It will be remembered that a group of Orchids at the Panama Exhibition was illustrated at page 105 of our last volume, where also may be seen a photograph of Mr. Eglington and his assistant.—ED.]

THE PLEASURES OF ORCHID-GROWING.

ORCHID culture has been revolutionised during the last three-quarters of a century, but it may be interesting to recall some remarks on the subject by the late Mr. James Bateman, author of that monumental work, *The Orchidaceæ of Mexico and Guatemala*, and one of the most enthusiastic Orchidists that ever lived. Some of them are not inapplicable to-day.

"We would next direct attention to a circumstance connected with their cultivation, which seems to place the family in a most advantageous light, we mean the much greater amount of interest that will be afforded by even a small house, if devoted to them, than would probably be derived from one of four times the extent, if filled with plants of any other description. Their superiority in this respect shows itself in a variety of ways. In the first place, the space required for each individual is usually very small, and while the shelves, stages, and even the flues, are preferred by some of the species, others of the true Air-plant and Dendrobium habit may be suspended over their heads, so that two distinct tiers of vegetation are thus obtained. In the next place the interest in the Orchideous house is never suffered to flag, something is constantly going on, either the opening of the flowers to be expected, or the progress of development of the leaves and pseudobulbs may be marked, or the progress of a young shoot has to be observed, or the life and death struggles of a recent importation have to be watched over, and that too with a degree of care and anxiety that could never be felt for ordinary plants. Then there are the seasons of growth and of rest, each of which has an interest peculiar to itself, since during the first the greatest change occurs in the circumstances and appearances of the plants, while during the second the greatest number of them flower, and thus, throughout the dreary months of winter, which, in the majority of Conservatories, is the season of nakedness and inaction, the Orchideous house is gayer than in the most glowing days of summer. The plants, too, with which it is so stored, are evergreens in the strictest sense of the word, and realise the

'. . . . . viret semper—nec fronde caduca
Carpitur'

of the Latin poet in a far higher degree than is to be seen elsewhere; for, while many of their number retain the same leaves in perfect health and beauty for six or eight seasons together, there are none which lose them in a shorter period than twelve months. It is likewise worthy of remark that the species which are the most unwilling to part with their natural advantages are also the most loth to change the abode which has been artificially offered them, and they may therefore, when once firmly

established in a suitable tenement, be left in undisturbed possession of it or ten or more years in succession, thus relieving the cultivator from the unsightly changes and continual shiftings which stove plants are wont to require."

In a footnote the Author remarks: "In the collection of the Author, although specimens in flower may at all times be seen, March and April, in the spring, and October and November, in the autumn, are, perhaps, the gayest months; the intervening period is 'growing season' with a large majority of the species, many of which come into blow just before the commencement, and a still greater number immediately after its termination. There are, however, several that flower at uncertain periods, others that flower all the year round, and likewise a few, we are concerned to say, never flower at all."

EPIDENDRUM WEDDELLII.—There are several of the purple-flowered Epidendrums which have never appeared in cultivation, and among them, so far as we can ascertain, the subject of this note. E. Weddellii was described by Lindley in 1853 (*Fol. Orch.*, Epidendr., p. 67), when the author remarked: "I have only seen a sketch of this among Mr. Weddell's Brazilian drawings. It represents a slender plant about a foot high with four leaves towards the root. The flowers are rose-coloured, like those of E. elongatum, and twice as large. The plant was found by Weddell, in the province of Minas Geraes, in December, 1843, and a coloured drawing is preserved in Lindley's Herbarium. A very similar plant has just flowered at the Royal Botanic Garden, Glasnevin, though we hardly think it can represent the same species. Sir Frederick W. Moore states that it was obtained from Messrs. Sander & Sons, in August, 1909, among a lot of newly-imported Orchids from Peru, and that it is rather curious in growth, as there are always two or three inches of internode between the branches. Another species of this affinity was described in 1882, under the name of E. fractiflexum (*Rodr. Gen. et Sp. Orch. nov.*, ii. p. 181), from materials collected in the province of Ceara, by Freire Allendo, but this was made synonymous with E. Weddellii by Cogniaux (*Mart. Fl. Bras.*, iii. pt. v. p. 169, t. 84). The original drawing shows a very zigzag rhizome, with the short branches five inches apart. The flowers are described as rose-coloured in the dried state. Although nearly allied, it is probable that the Peruvian plant is specifically distinct, for, while the internodes are shorter, both the stems and leaves are longer, and the flowers more numerous. The colour is rose-purple, the two side lobes of the lip rounded, and the front lobe cut into two oblong divisions, all being neatly denticulate. There are two or three other imperfectly known species of this affinity.—R.A.R.

A GROUP OF DENDROBIUMS.

DENDROBIUMS will shortly be making a fine show in our collections, and many of them, both species and hybrids, are very useful for cutting, and for decorative purposes generally. The annexed group represents a group of hybrids that flowered in the collection of the late R. I. Measures, Esq., of Camberwell, some years ago, when they were photographed by Mr. H. J. Chapman, then Mr. Measures' gardener. In three cases the easily-grown D. nobile are concerned in the ancestry.

Fig. 11. D. ELLISII VAR. WIGANIANUM.
Fig. 12. D. SIBYL. Fig. 13. D. WIGANIÆ.
Fig. 14. D. CHLOROSTELE. VAR. OWENIANUM. Fig. 15. D. MELANODISCUS VAR. PALLENS.

D. ELLISII VAR. WIGANIANUM, the upper flower (fig. 11), is a hybrid raised in the collection of Sir F. Wigan, Bart., from D. Hildebrandii × nobile. It is the reverse cross of the original D. Ellisii, and received an Award of Merit from the R.H.S. in February, 1901. The sepals and petals are pale blush, and the lip flushed with rose-pink round the dark maroon disc. It is as floriferous as the parents. D. Ellisii flowered in the collection of Welbore S. Ellis, Esq., Dorking, in January, 1901.

D. SIBYL, the flower on the left (fig. 12), was raised in the collection of N. C. Cookson, Esq., and received an Award of Merit from the R.H.S. in March, 1893, and a First-class Certificate a year later. The parentage was recorded as D. Linawianum × bigibbum, but this was always doubtful, and Messrs. Armstrong & Brown have since raised it from D. crassinode and D. Linawianum (*O.R.*, xix. p. 113). The flower is of a pretty rosy shade, with two small spots on the paler disc of the lip.

D. WIGANIÆ, the upper flower on the right (fig. 13), was raised in the collection of Sir Frederick Wigan, Bart., from D. nobile × signatum, and flowered in March, 1896. The flowers are light buff, with two maroon blotches on the disc of the lip. Shortly afterwards it was raised by Messrs. Veitch and by Sir Trevor Lawrence, Bart.

D. CHLOROSTELE VAR. OWENIANUM, represented by two flowers below the centre (fig. 14), was raised by N. C. Cookson, Esq., from D. Linawianum × Wardianum, flowering in 1891, and receiving a First-class Certificate from the R.H.S. in February, 1893. The flowers are blush pink, tipped with rosy purple, and the disc of the lip maroon.

D. MELANODISCUS VAR. PALLENS, the lower right hand flower (fig. 15), was raised by Sir Trevor Lawrence, Bart., from D. Ainsworthii and D. Findlayanum, and was one of a very varied batch of seedlings. It received an Award of Merit from the R.H.S. in February, 1896. The flowers are blush white, flushed with rose on the disc of the lip.

OBITUARY.

HENRY WHATELEY.—It is with much regret that we record the death, on Saturday, December 18th, after an illness of fifteen months duration, of Mr. H. Whateley, of Spring Gardens and Priory Lawn, Kenilworth. Mr. Whateley has long been know as a grower of fruit and flowers for market, and Orchids and Carnations were among his favourites. In the spring of 1885, after having been previously engaged with his father, he took the small nursery at Spring Lane, Kenilworth, and succeeded in developing an important business, the glass-houses covering an area of about six and a half acres. Latterley he had to relinquish some of his activities, and had made over the Orchid business to his eldest son, who now succeeds him in the management of the nursery. We do not remember Mr. Whateley as a recent exhibitor, but in April, 1896, he received an Award of Merit from the R.H.S. for Odontoglossum crispum Whateleyæ, a beautiful white form, profusely and regularly spotted with purple. For many years he has been a subscriber to the *Orchid Review*. He leaves a widow, three sons, and three daughters.

CALENDAR OF OPERATIONS FOR JANUARY.

By J. T. BARRER, The West Hill Gardens, Hessle, E. Yorks.

THE continual improvement in the methods of cultivation of all classes of Orchids has to be recorded, and still even more progress will be made as time goes on; and this is due entirely to plants of all sections being treated rationally, and not coddled and treated like spoilt children. With the lengthening days we may possibly have better climatic conditions, as recently they have been of the worst. An atmosphere heavily charged with moisture, with very little light and a cold snap in the wind, are the worst possible factors in maintaining sweet and healthy conditions in the different houses in which our plants are grown, and unless such conditions are maintained one cannot expect the best results. The whole question of successful Orchid culture depends entirely on the plants being placed under healthy conditions, each according to its respective requirements.

TEMPERATURES.—There is not much diversity of opinion as regards the best temperatures for the different houses to be maintained at, and they have been given so many times in these pages that it almost seems a waste of space to repeat them, but for the benefit of new subscribers I will do so. The figures are only given as a guide, and no harm will accrue if they vary a few degrees either way. It is impossible to keep houses at a fixed figure under all kinds of conditions, as a slight fall in extremely cold weather is much better than trying to maintain the temperatures with fire heat.

Cool house: Day, 50° to 55°, with sun, 60°; night, 50°.

Intermediate house: Day, 60° to 65°, with sun, 66°; night, 57° to 60°.

Cattleya and Mexican house: Day, 60° to 65°, with sun, 68°; night, 58° to 60°.

East Indian house: Day, 65° to 70°, with sun, 75°; night, 65°.

VENTILATION.—The ventilation of the respective houses at this season of the year must have most careful attention, as the health of the plants depends entirely upon a supply of fresh air being afforded them whenever possible. Growths made under these conditions are consolidated as made, and are enabled to stand more hardships than those made in stuffy and badly-ventilated houses. Draughts, however, must be strictly avoided, as these are highly injurious to all plant life.

ATMOSPHERIC MOISTURE plays a great part in the growth of all plants grown under artificial conditions, and must be regulated according to the weather outside. Again, some houses are naturally dry, others damp, and these two extremes have to be taken into consideration when deciding upon the requisite amount of moisture in the atmosphere to maintain sweet and healthy conditions. In clear and bright weather, when it is necessary to

use a considerable amount of fire heat, sufficient moisture should be used to prevent a dry parched atmosphere; on the other hand, the opposite must be avoided, as a low temperature heavily charged with moisture is most detrimental to, and is the cause of many ill-matured plants falling a prey to various diseases.

WATERING.—The application of water to the roots of the plants, combined with that contained in the atmosphere, is the great secret of successful cultivation. At this particular season, when some plants are at rest and others making growth, the application of water to the roots of the plants must have careful attention. The effect of too much water is much the same as too little; an excess causes the roots and the compost to decay, whilst any insufficiency makes them wither and die, and the loss of roots to any plant spells disaster. The compost in which the plant is growing has also to be taken into consideration, as some composts retain water more than others. Again, a plant potted firmly will differ from one potted loosely in the amount of water it will take up, and by careful observation the cultivator will soon get to know the requirements of his plants individually. Those plants at rest should only have sufficient water given them to prevent shrivelling, whilst with those in growth care should be taken that the compost becomes dry between each operation. In every case at this season it is wise to err on the side of carefulness.

GENERAL WORK.—The general work of the present month will consist chiefly in cleansing of the plants and the houses, and should these two essential items be in arrears through a shortage of labour, every effort should be made to bring them up to date as speedily as possible. Light being an essential factor in keeping plants healthy during our long winter months, and as the recent wet and foggy weather leaves a deposit upon the glass, which obscures the light, every effort should be made to keep it as clean as possible. In districts near large cities this item needs constant attention.

ODONTOGLOSSUMS that are showing for flower should be carefully and neatly staked up as the spikes become long enough. They are best set by themselves, where they can be examined from time to time for slugs, which devour the spikes and do irreparable harm. Small, weakly plants which show spikes should have them removed as soon as they show, as such plants should not be allowed to produce flowers until they get fairly robust and strong. Towards the end of the month any plants that were omitted in the autumn and now need repotting may have attention when they reach the desired condition, namely, when the young growths are about to push new roots. Many failures are attributable to potting these plants when not in the right condition. Those that are in a sour compost should be removed and placed in sweet and healthy material, keeping them on the dry side until new roots are observed to be pushing.

CYPRIPEDIUMS of the winter-flowering section are now at their best, and in spite of what one hears about their decline in popularity, they are indispensable, especially for cut flower purposes. There are many of the later additions that, when they become more plentiful and better known, will be in great demand for this purpose. All this season they should receive all the light possible, and as they pass out of bloom may be repotted. The compost should be made up of two parts fibrous peat, one part AI fibre, and one part fibrous loam, with a liberal mixture of sphagnum moss. The newly-potted plants should be kept on the dry side until the new roots get fairly into action. Those in flower and pushing up their flower spikes should have water whenever they appear to be dry.

MILTONIAS of the vexillaria section, both hybrids and species, are now in full growth, and must have water applied to them whenever they require it, but care must be taken that the compost becomes dry between each operation. These plants resent faulty watering sooner, perhaps, than any other Orchid. A suitable situation at this season of the year is a moderately damp position in the Intermediate house. I find that when grown under proper conditions these plants are not so subject to that dreadful pest, yellow thrip, hence the belief that plants placed under unnatural conditions easily fall a prey to their various enemies.

LÆLIAS of the anceps section are now in bloom, and may be kept moderately dry, both at the roots and in the atmosphere, but care must be taken that they are not allowed to shrivel or lose their roots through an excess of moisture at the roots.

DENDROBIUMS of the deciduous section, which are resting in the resting-house, must also receive sufficient water to prevent shrivelling. Those on which the flower buds are in an advanced condition may be placed in a slightly warmer temperature, but must on no account be unduly forced, or the flower buds may all fall off. By these means their season of flowering may be prolonged, but it is advisable to carry it out as a means to an end, as the flowers are not as fine, either in size or colour, as when allowed to flower at a later period when there is more light.

CATTLEYAS, Læliocattleyas, Brassocattleyas, and any of this family that are pushing new roots may be repotted, should they be in need of new material. The compost I now use for these plants is made up of equal portions of peat fibre, AI fibre, osmunda fibre, and sphagnum moss, all thoroughly mixed together. The plants should be potted firmly, and staked to prevent rocking. Those plants that are in bloom, or pushing up their flower spikes, may be given a few degrees more heat, and the atmosphere kept slightly drier than those that are at rest. It is now possible to enjoy these beautiful flowers the whole year round, and there are so many varieties that there are always some in a growing condition. C. Warneri

and its hybrids are now commencing to grow, and must be placed in a light position, and have water whenever they require it. C. Trianæ will soon begin to bloom.

CŒLOGYNE CRISTATA and its varieties are now pushing up their flower spikes at the cool end of the Intermediate house, and must not be allowed to suffer for want of water. Other varieties of Cœlogyne must have water according to their condition; those that are growing must have it applied to them whenever they become dry, and those at rest should only have sufficient to prevent shrivelling, as a long season of rest is essential to their satisfactory flowering.

CALANTHES of the deciduous section that have finished flowering should be placed in a nice warm dry situation to rest until they start to grow in the spring. Care should be taken that the temperature does not fall too low, neither should the position be a damp one.

GENERAL REMARKS.—Whilst the open weather continues a good supply of sphagnum moss, peat, and other materials should be acquired, so that when the busy season is upon us no delay be experienced for the want of it. Owing to abnormal freights osmunda fibre is likely to be scarce and reach an unusual price, so that whenever possible it will be advisable to keep a stock in hand.

I trust that each of us, and, most of all, that our beloved country may reap every success in the coming year.

PLEUROTHALLIS LEPTOTIFOLIA.—We believe Reichenbach once remarked that "an Orchidist should be armed with a large magnifying glass," and it would certainly have been useful at the last R.H.S. meeting, when Messrs. Flory & Black, Orchid Nursery, Slough, exhibited a plant of the above dainty little Orchid. It was in a small seedling pot, and might well have been accommodated on a block the size of a penny. It formed a small tuft, under an inch high, with nineteen deep yellow flowers. It is a native of Brazil, where, according to Rodriguez, who described it in 1877 (*Gen. et Sp. Orch. nov.*, i. p. 15), it occurs in numerous localities in the province of Minos Geraes. It grows on the branches of trees, and his drawing shows a fairly stout creeping rhizome, with numerous fleshy terete leaves, about ¾ inch long, and slender 2-flowered scapes about twice as long as the leaves, the flowers being about three lines long, and deep yellow in colour. Glaziou afterwards collected the plant in the province of Rio de Janeiro. It was introduced to cultivation some years ago, and has been twice figured, once from Rodriguez's original drawing (*Mart. Fl. Bras.*, iii. pt. iv. p. 502, t. 148, fig. 3), and once from the cultivated plant (Rchb. f. *Xen. Orch.*, iii. p. 134, t. 276, fig. 3). It may be compared to a minute Leptotes in habit.—R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

THE last meeting of the year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 7th, and produced a good display of Orchids, the awards consisting of four medals, three Awards of Merit, and one Seedling Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, J. Wilson Potter, R. A. Rolfe, F. J. Hanbury, Pantia Ralli, T. Armstrong, W. Cobb, J. Charlesworth, C. H. Curtis, W. P. Bound, J. E. Shill, A. Dye, S. W. Flory, W. Bolton, R. Brooman White, and Gurney Wilson.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier), sent Læliocattleya epicasta Gatton Glory, a very fine form, having two large purple flowers, the lip being deep purple with a yellow throat.

Sir Herbert Leon, Bletchley Park (gr. Mr. J. Cooper), sent Læliocattleya Leoniæ (parentage unrecorded), a large-flowered hybrid allied to Lc. bletchleyensis, having primrose yellow sepals and petals tinged with purple and the lip deep purple.

F. J. Hanbury, Esq., Brockhurst, E. Grinstead, showed a flower of Læliocattleya Adolphaurea (Lc. Adolphus × C. Dowiana aurea), a promising hybrid, with reddish orange sepals and petals, and the lip ruby crimson with a deep yellow throat.

Messrs. Charlesworth & Co., Haywards Heath, staged a large and showy group, the feature of which was a fine lot of autumn-blooming Lælias, including a lot of L. Gouldiana in the centre, with coloured forms of L. anceps at one end and L. autumnalis at the other. We also noted a fine plant of L. autumnalis alba, several splendidly-grown Odontoglossums with great panicles of flowers, Cypripedium Marica (aureum Surprise × insigne Sanderæ), a beautiful yellow flower with the upper half of the dorsal sepal white, C. Fairrieanum, some good Læliocattleyas, and others (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a good group, including Læliocattleya rubens, Lc. Joan (Lc. Coronis × C. Fabia), Cattleya Williamsiæ alba (Gaskelliana alba × Harrisoniana alba), a pretty white variety, C. Hassallii, Brassocattleya heatonensis, Odontoglossum harvengtense, Cypripedium Thalia, and others (Siver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a pretty little group, including examples of Vanda cœrulea and Oncidium varicosum Rogersii, Oncidium Cooksoniæ, Brassocattleya Brunette (C. Pittiana × Bc. Fournieræ, Cattleya Enid, and Læliocattleya luminosa (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a bright little group, ncluding Cymbidium Schlegelii and Doris, Odontoglossum waltonense and triumphosum, the latter with a fine panicle of flowers, Sophrocattleya November, two plants of Sc. Pearl, one of them with a three-flowered spike. Odontioda Charlesworthii and Diana, a well-flowered Lælia anceps Schrœderæ, and a few others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a very fine Cattleya Maggie-Raphael alba, and a few small seedlings, including Odontoglossum Peerless var. rotundum, a fine white flower with a large red-brown blotch on each segment, and Odontioda Ceres var. nigrescens (Oda. Bradshawiæ × Odm. Armstrongiæ), having ruby-purple sepals and petals and a darker lip, and a well-bloomed plant of Cirrhopetalum retusum.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, staged a small group, including a hybrid from Cattleya labiata and Percivaliana, with four richly-coloured flowers, Oncidium cheirophorum, and a few others.

Messrs. Flory & Black, Slough, sent a richly-coloured Cattleya Moira, Cypripedium Pyramus var. Euphemia with well-blotched dorsal sepal, three plants of C. Christopher, and Pleurothallis leptotifolia, a minute species with terete leaves and short spikes of bright yellow flowers.

Messrs. Sander & Sons, St. Albans, sent Cattleya Sylvia var. marmorata, having the petals very regularly marbled with rose, C. Snow-Queen, and C. Evelyn-Sander (Dusseldorfii Undine × Trianæ alba).

AWARDS OF MERIT.

LÆLIOCATTLEYA INVINCIBLE VAR. HIS MAJESTY (Dominiana × bletchleyensis).—A very richly-coloured form, having deep rose-purple sepals and petals, and an almost blackish purple lip, with a trace of yellow veining below. Exhibited by Messrs. Sander & Sons.

LÆLIOCATTLEYA ST.-ALBAN (Lc. Golden-Glory × C. Dowiana aurea).—A charming hybrid, bearing three flowers, with copper-yellow sepals and petals, and a darker lip with some yellow veining on the disc. Exhibited by Messrs. Sander & Sons.

ODONTIODA APHRODITE (Oda. Diana × Odm. eximium).—A very pretty hybrid, having round rosy-purple flowers, with whitish tips to the sepals, and a whitish line all round the petals inside the margin, and another in front of the lip's disc, which is yellow. Exhibited by Messrs. Charlesworth & Co.

SEEDLING COMMENDATION.

ODONTIODA ARMSTRONGIÆ (Oda. Bradshawiæ × Odm. Armstrongiæ).—A promising seedling, bearing its first flower, the sepals and petals being closely freckled with reddish brown on a light ground, and the lip darker with some rosy markings in front, and the crest yellow. Exhibited by Messrs. Armstrong & Brown.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on December 2nd, 1915, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, P. Foster, A. R. Handley, A. Hanmer, A. J. Keeling, D. McLeod, W. J. Morgan, W. Shackleton, S. Swift, H. Thorp, and H. Arthur, Sec.).

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a magnificent group of over 120 plants, composed principally of Cypripediums. C. insigne was represented by the following yellow varieties: Gladys, Luciani, Sanderæ, Sanderianum, Cobbianum, Ernestii, Chantinii Lindenii, and Laura Kimball, and of the spotted varieties there were Mrs. O. O. Wrigley, Kathleen Corser, Agatha, Constance, punctatum-giganteum, Dormanii, Bohnhofianum, Berryanum, and Harefield Hall. The hybrids formed a fine series, and included twelve plants of C. Maudiæ. There were also Odontoglossums in variety, Vanda cœrulea (ten plants) of good colour, Epidendrum vitellinum autumnale (ten plants), Masdevallia tovarensis, and others, a Silver-gilt Medal and Cultural Certificate being awarded to the gardener for general excellence and culture.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a group, to which a Silver-gilt Medal was awarded. It included some fine Cypripediums and Odontoglossums, Oncidium Forbesii and crispum, Odontioda Charlesworthii, Oncidioda Cooksoniæ, and Cattleya Portia superba.

A. Hanmer, Esq., Chester (gr. Mr. B. Wilson), was awarded a Large Silver Medal for a mixed group, including numerous Cypripediums, Odontoglossum crispum, amabile, and ardentissimum, Zygopetalum Mackayi, Vanda cœrulea, Lycaste Skinneri, Dendrobium Dearei, Dendrochilum Cobbianum, Oncidium Forbesii, Miltonia vexillaria, Læliocattleya Pallas, and others.

Messrs. Cypher & Sons, Cheltenham, were awarded a Large Silver Medal for a group of Cypripediums, consisting chiefly of choice hybrids and varieties of C. insigne.

Interesting exhibits were also sent by S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); H. J. Bromilow, Esq., Rainhill (gr. Mr. W. J. Morgan); A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); Mrs. S. Gratrix, Whalley Range (gr. Mr. J. Brown); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall); Messrs. A. J. Keeling & Sons, Bradford; Mr. W. Shackleton, Bradford, and Messrs. Sander & Sons, St. Albans, several of which appeared in the award list. Messrs. Sander's group included Læliocattleya Montreal (C. Hardyana × Lc. bella).

FIRST-CLASS CERTIFICATES.

Cypripedium The Ghurka (parentage unknown), a finely-shaped flower; dorsal sepal chocolate brown with band of apple green edged with white;

petals and pouch dark shade of chocolate brown; and C. Selene (parentage unknown), a large bold flower; dorsal sepal 3in. across, yellow edged with white; petals and pouch of same shade lightly tinged with brown, from H. J. Bromilow, Esq.

AWARDS OF MERIT.

Odontoglossum percultum var. Black Knight, Odontioda Diana West Point var., and Cypripedium Troilus The Tiger, all from S. Gratrix, Esq.

Cypripedium Georgius-Imperator (Chas. Canham × Leeanum), from the Rev. J. Crombleholme.

Odontoglossum Watsonianum Merle Dene var., from A. J. Oakshott, Esq.

FIRST-CLASS CULTURAL CERTIFICATES.

To Mr. E. Rogers, for general cultivation in group exhibited, and Mr. W. Gilden, for Cattleya Portia superba.

At the meeting held on Thursday, December 16th, 1915, the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. H. Bell, J. Cypher, J. Evans, P. Foster, A. R. Handley, D. McLeod, W. J. Morgan, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

Cypripediums were greatly in the ascendant, and carried off three out of the four Silver Medals awarded, besides a Bronze Medal, while quite half of the remaining exhibits belonged to this useful genus.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine miscellaneous group, including numerous Odontoglossums and Cypripediums, with a few good Odontiodas, Cattleyas, Læliocattleyas, Sophronitis grandiflora, and others.

Silver Medals were awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); Wm. Thompson, Esq., Stone (gr. Mr. J. Howes); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), and Messrs. Cypher & Sons, Cheltenham, for fine groups, all but the first-named consisting of choice winter-blooming Cypripediums, Mr. Crombleholme's group including a number of home-raised seedlings.

A Bronze Medal was awarded to Messrs. A. J. Keeling & Sons, Bradford, for a group of Cypripediums, including several seedlings and some cut blooms.

Interesting exhibits were also staged by O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher); H. J. Bromilow, Esq., Rainhill (gr. Mr. W. J. Morgan); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), and Messrs. Sander & Sons, St. Albans, some of which appear in the list of awards.

FIRST-CLASS CERTIFICATES.

Læliocattleya Alex Ashlands var. (L.c. Tunis × C. Dowiana aurea), a well-shaped flower, suffused with peach colour, and with a broad, deeply-coloured lip, from R. Ashworth, Esq.

Cypripedium Thora (Fairrieanum × Earl-Tankerville), a huge flower, with well-spotted dorsal sepal, from H. J. Bromilow, Esq.

Odontoglossum crispum Luna Umbra, a large round flower of good substance, from S. Gratrix, Esq.

Cypripedium Alcibiades var. Sir Douglas Haig, a large flower, with the dorsal sepal over three inches across, and flat petals, slightly lined, from P. Smith, Esq.

Cypripedium Alcibiades var. Thunderer, a large flower, with dorsal sepal slightly waved, over three inches across, from Wm. Thompson, Esq.

AWARDS OF MERIT.

Cattleya Evelyn-Sander (Trianæ alba × Dusseldorfii Undine), and C. Dragon (C. Fabia × fulvescens), from S. Gratrix, Esq.

Cypripedium Golden-Gem (insigne Sanderæ × Antinous), from R. Ashworth, Esq.

AWARD OF APPRECIATION.

Cypripedium Walton-Gem (Mme. Jules Hye × Earl-Tankerville), from W. Thompson, Esq.

CULTURAL CERTIFICATE.

To Mr. W. W. Field, gardener to S. Gratrix, Esq., for a batch of Lælia Gouldiana.

THE BRASSOCATLÆLIAS.

(*Continued from vol. xxiii., p.* 350).

A BATCH of twenty additional Brassocatlælias appeared in our issue for November last, and we now give another instalment.

BCL. ADONIS (B. Digbyana × Lc. Canhamiana), *Charlesw. Cat.*, 1912, p. 71.—Charlesworth & Co., 1911.

Brassolæliocattleya pulcherrima and Blc. Taurus, *Sand. O. Hyb.*, 1915, p. 5, are synonymous.

BCL. AGAMEDES (Bl. Gratrixiæ × C. labiata), *Charlesw. Cat.*, 1909, p. 72.—Charlesworth & Co., 1908.

BCL. ARDERNIÆ (B. Digbyana × Lc. callistoglossa), *Charlesworth Cat.*, 1912, p. 71.—Charlesworth & Co. 1911.

BCL. AURORA (Bc. Leemaniæ × Lc. Ernestii), *J.S.H.Fr.*, 1911, p. 131. —Ch. Maron., March, 1910.

Læliocattleya (unnamed), *J.S.H.Fr.*, 1910, p. 232.

BCL. ENDYMION (Bl. Veitchii × C. Warneri), *Charlesw. Cat.*, 1912, p. 71.—Charlesworth & Co., 1911.

BCL. FREDA (Bc. Leemaniæ × Lc. Elinor), *O.R.*, 1915, p. 127.—Sir George L. Holford, March, 1915.

BCL. GOLDEN-HORN (Bcl. Rowena × Lc. Goldcrest), *O.R.*, 1915, p. 127.—Sir George L. Holford, March, 1915.

BCL. LUA (Bl. Gratrixiæ × Lc. Ballii), *Charlesw. Cat.*, 1909, p. 72).—Charlesworth & Co., 1908.

BCL. LUTETIA (Bc. Leemaniæ × Lc. highburiensis), *Charlesw. Cat.*, 1912, p. 71.—Charlesworth & Co., 1911.

BCL. PERVENUSTA (B. Digbyana × Lc. bletchleyensis), *Charlesw. Cat.*, 1914, p. 10.—Charlesworth & Co., 1913.

BCL. RENIÆ (Bc. Leemanniæ × Lc. Truffautiana), *O.R.*, 1911, p. 342.—Ch. Maron. April, 1908.

Læliocattleya Reniæ, *J.S.H.Fr.*, 1908, p. 301.

BCL. SEAFORTH-HIGHLANDER (Bc. Leemaniæ × Lc. Aphrodite).—Sander & Sons, Nov., 1914.

Brassocattleya Seaforth-Highlander, *O.R.*, 1914, p. 366.

BCL. SPHINX (Bc. Maroniæ × Lc. Canhamiana).—Marcoz. July, 1912.

Brassocattleya Sphinx, *J.S.H.Fr.*, 1912, p. 448.

BCL. THERA (B. Digbyana × Lc. Ballii), *Charlesw. Cat.*, 1909, p. 72.—Charlesworth & Co., 1908.

BCL. TRIUNE (Bc. langleyensis × Lc. Ballii), *O.R.*, 1911, p. 148.—Sir Trevor Lawrence, Aprill, 1911.

BCL. WATTEAU (B. Digbyana × Lc. Truffautiana).—Ch. Maron. Oct., 1909.

Læliocattleya Watteau, *J.S.H.Fr.*, 1909, p. 588.

BCL. WINIFRED (Bl. Gratrixiæ × Lc. Myra), *O.R.*, 1910, p. 86.—Charlesworth & Co., Feb., 1910.

THE RED CROSS FUND.—From an advertisement on another page it will be seen that the collection of Orchids of Mrs. R. N. Hooper, Stanshames Court, Chipping Sodbury, Glos., is to be sold for the benefit of the funds of the joint societies of The British Red Cross and the Order of the Hospital of St. John of Jerusalem in England. The collection is to be disposed of by private treaty through Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, who inform us that Mrs. Hooper, being herself a member, has approached the officials of the joint societies, and the sale has their approval and best wishes for success. The collection consists of nearly 2,000 well-grown plants, and a Catalogue is being prepared, with particulars of sale, which will be forwarded by Messrs. Keeling on application. Mrs. Hooper's Orchid grower has joined the colours.

We learn that about 150 of the Orchids sold by F. D. Godman, Esq., South Lodge, Horsham, for the benefit of the Red Cross Funds (see page 352 of our last volume) have been purchased by Col. Stephenson R. Clarke, C.B., Borde Hill, Cuckfield, Sussex.

LYCASTE SKINNERI ARMENIACA.

THE sight of a fine flower of Lycaste Skinneri alba, a little out of season at the close of the year, reminds us of another very charming variety, which is represented in the annexed figure. It is characterised by having a shade of pinkish orange or apricot on the lip, which extends to the petals

Fig. 16. LYCASTE SKINNERI ARMENIACA.

as a paler tint, and contrasts effectively with the white sepals. It flowered in the collection of the late Reginald Young, Esq., Liverpool, and received a First-class Certificate from the R.H.S. in March, 1890. The flower is represented about one-third natural size, and the plant also bore a ripe capsule when photographed, the result of fertilising a flower of the previous year. The seeds were afterwards sown, but we did not hear whether seedlings were obtained.

Lycaste Skinneri is a very variable Central American species, which we believe has been continuously cultivated ever since its original introduction by Mr. G. Ure Skinner in 1841. In some of the varieties the petals and lip are very richly coloured.

CATTLEYA LABIATA FROM CEARA.

AN interesting Cattleya has been sent for determination by M. J. Simao da Costa, Para, Brazil. He writes: "In March last I received from the Brazilian State of Ceara a few plants of Cattleya labiata, two of which have just flowered, and the flowers seem to me so distinct from any Cattleya, hybrid or otherwise, that I can find described that I suspect it may be something new. You will particularly notice the broad, crispy character of the lower sepals, which are different from anything I know. The general characteristics of the flower are as follows: Sepals and petals rosy lilac; lip of the same colour, with the front lobe bright purple-crimson, the side lobes with irregular creamy white blotches, the throat deep orange veined with purple-crimson, and the column pure white. The lower sepals are of the same colour as the throat of the lip—orange yellow veined with purple, with creamy white blotches near the much-fringed inner edges, and a small blotch of bright purple crimson in front. The back of the lower sepals is tinged with plain orange-yellow along the centre, from the apex to the middle. It flowers before maturing the bulb, and when in full bloom the flowers have a luminous appearance."

The flower is also smaller than in typical C. labiata, but we are inclined to regard it as an abnormal state of that species. In any case the flower is in that peloriate condition that is seen in abnormal forms of several other Orchids where the inner halves of the sepals are coloured like the lip. It will be interesting to see what the flowers of the remaining plants are like. If they belong to C. labiata, for which they were imported, it indicates an extension of the area of the species. The State of Parahyba, to the north of Pernambuco, has already been recorded, and Ceara lies further to the north-west. It seems unlikely that a new and closely-allied species should occur there, and we hope M. Costa will be able to clear up the matter.

CYPRIPEDIUM RICKARDSII (Cynthia × Hera).—A handsome hybrid from the collection of R. W. Rickards, Esq., The Priory, Usk. The parentage is rather complex, and an analysis shows that it is derived from the five species, C. insigne, Charlesworthii, Spicerianum, villosum and Boxallii. The petals are very broad, and nearly horizontal, and their colour, with the greater part of the dorsal sepal, is of a decided shining red-brown, the margin of the latter being reticulated with rose on a white ground, showing the influence of C. Charlesworthii very clearly. The confluent lateral sepals are much broader than usual, and on each side is a

large area coloured like the base of the dorsal sepal, the centre being yellowish. It may be remarked that C. Leeanum (insigne × Spicerianum) comes in through both parents, and the influence is obvious enough in shape, though rather obscured by the richer colour of the other parents. It is a plant of great promise, though Mr. Rickards remarks that the plant is small at present and not very robust.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during January, 1916, on the 11th and 25th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on January 6th and 20th, 1916. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m. The following meeting is fixed for February 3rd.

ORCHIDS AT BOSTON.—A report in *Horticulture* show that a few Orchids were exhibited at the Annual Fall Exhibition of the Massachusetts Horticultural Society, held at Boston, U.S.A., early in November. There are two superb displays of Orchids, long groups of elegant specimen plants in many genera from Wheeler & Co., of Waban, and F. J. Dolansky of Lynn, both commercial growers for cut flower purposes. No private estate could excel them. There are also two Orchid specimen plants of rare merit. One is Cattleya Moira (Mantini × Fabia) with a spike of three great blooms, from A. W. Preston (gard. John L. Smith). The other a specimen Cattleya Trianæ from George W. Stewart. In the award list we note: Orchids—Plants and flowers: 1st, F. J. Dolansky; 2nd, Wheeler & Co.; six plants, 1st, F. J. Dolansky; specimen, 1st, F. J. Dolansky; 2nd, Miss Cornelia Warren.

In the report of the Show of the Horticultural Society of New York, held at the American Museum of Natural History, from Nov. 4th and 7th, it is also remarked: Lager & Hurrell won all the commercial Orchid prizes, including the Silver Medal for Cattleya Olivia. The non-commercial Orchid exhibitors were George Schlegel and Clement Moore, and the collections from these two famous establishments were superb, as usual. A specimen of Brassocattleya Maroniæ superba by Clement Moore won the

Sweepstakes Silver Medal as the best Orchid shown. J. A. Manda received a Silver Medal for a specimen Cattleya labiata.

LYCASTES WITH TWIN-FLOWERED SCAPES.—A fine plant of Lycaste gigantea has flowered well at Kew, and one of the scapes bore two flowers, a rare occurrence in this genus. We recall, however, the case of L. Deppei producing a twin-flowered scape in the collection of Dr. Hodgkinson, The Grange, Wilmslow, as recorded at page 256 of our first volume. It affords evidence of good culture.

CATTLEYA FABIA VAR. VIGERIANA.—In reply to your query at page 321 of your November issue, I may say that the parents used were a good C. Dowiana aurea and a dark C. labiata. Of the seedlings about half had bronzed leaves and the other half green. The flowers of the bronzed-leaved seedlings are darker than the others and marked in the way of Fritillaria meleagris, and those with green leaves are equally bright but of a different shade. CH. MARON.

Brunoy, France.

[The variation is interesting, and as the mottling of the flower is not shown in M. Goossens' figure (*Dict. Ic. Orch.*, Cat. hyb. t. 24) that presumably represents one of the green-leaved seedlings (the leaf is not shown). The pollen parent is there recorded as C. labiata flammea. The hybrid is exceptional in the intensity of colouring.—ED.]

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

E.W.—Maxillaria punctata, Lodd. Brazil.

A.E.B.—We believe the collections are safe at present ; at all events we heard of two of them quite recently through a neutral source, but we have no other details.

B.—Cirrhopetalum gracillimum, Rolfe. Malaya.

AMATEUR.—There is nothing so destructive to the roots of Cattleyas as a sour compost, and this is chiefly caused by overwatering. The compost should be kept comparatively dry during the winter, especially when the roots are inactive.

J.C.—Masdevallia abbreviata, Rchb. f.

BEGINNER.—Sow part of the seed as soon as ripe on the compost of some plant that will not require potting for some months, and the rest a little later in the spring.

We hope that our readers will keep us acquainted with the interesting Orchids that flower in their collections from time to time, as without such co-operation important information is apt to be overlooked. Photographs suitable for reproduction are also invited. Clear prints on smooth paper give the best results, and isochromatic plates should be used whenever possible.

The Orchid Review

VOL. XXIV. FEBRUARY, 1916. No. 278.

OUR NOTE BOOK.

WINTER-BLOOMING Cypripediums have been the subject of comment in our last two issues, and some further remarks by interested correspondents appear in the present one, these having been accompanied by a series of flowers. And the call for an increase of colour in the direction of rose and purple has been quickly answered, for a new hybrid of almost uniform claret red, bearing the name of Cypripedium Moira, was exhibited at the R.H.S. meeting held on January 26th, by Messrs. Hassall & Co. It was, fortunately, not shown under the enigmatic formula of "parentage unrecorded," and therefore an analysis is possible, which will be studied with interest. It was derived from C. Priam × bingleyense, and its descent may be graphically illustrated as follows :—

Fairrieanum* × Spicerianum.* barbatum × villosum.*

Niobe × insigne.* Harrisianum × Charlesworthii.*

Priam × bingleyense.

Moira.

Thus C. Moira is composed of six species (indicated by an asterisk), in the following proportions : C. insigne and Charlesworthii one-quarter each, and C. Fairrieanum, Spicerianum, barbatum, and villosum one-eighth each. It is a little difficult to account for the presence of so much colour in the flower, and especially for the almost complete absence of green, but probably the purple of C. barbatum and C. Fairrieanum has blended with the rose of C. Charlesworthii in the dorsal sepal, and with the browns that are represented in the petals and lips of the other species. The leaves also are distinctly tessellated, although C. barbatum is the only one of the six species having this character. Other seedlings from the same batch—we assume that it is not the only one—may, of course, present quite a different combination of the specific characters, as is almost invariably the case with these complex hybrids. It may be one of the "surprises" that Mr. Barker speaks of, but we should say that each of the five crosses involved was made with a definite object in view, and has been justified by results.

The cross should be followed up, and if we were asked to name a suitable second parent we would suggest something with a good shape and as little green as possible. The more white in the dorsal sepal the better, because it implies a reduced amount of green. Size we should regard as an altogether secondary consideration, for quality should be the first point aimed at. A great deal depends upon the selection of a good second parent, and the term means one possessing characters that experience has shown to be likely to give at least an approximation to the qualities desired. Promiscuous crossing is now completely out of date, and judicious selection should be exercised at every stage. Work on such lines will certainly be rewarded with success, and undesirable reversions can easily be discarded.

"Mendelism up to date" is the title of an article in the last issue of *The Journal of Heredity*. It is a review of a new work on "The Mechanism of Mendelian Heredity," by Prof. T. H. Morgan, of Columbia University, and his associates. "One of the useful functions of the volume," we are told, "should be to bring home to readers who have a little knowledge of genetics a realisation of the fact that the term 'Mendelism' is nowadays used to cover a number of distinct and, in their details, often irreconcilable views. . . To put the matter very frankly . . . a large part of the so-called 'Mendelism' which is current at present is in some way out of date. The first fundamental principle of Mendelism," it is remarked, "is the existence of relatively constant units, the Mendelian unit-factors, as the basis for transmission of all the traits that go to make up an animal or plant." Each of these factors is considered to be nearly or quite *constant*; to be uncontaminated by other factors with which it may come in contact in the cell; and to undergo little, if any, change from generation to generation.

It would take too long to summarise the article, and we may therefore give what is termed the "main features of the mechanism of Mendelian heredity, as understood by the authors":—

"1. That the various characters which make up the physical constitution of any individual plant or animal are due to the action (concurrently with the environment, of course) of what we term, for convenience, factors, separable hypothetical units in the germ plasm, capable of independent transmission.

"2. That each visible character is due to the co-operative action of an indefinitely large number of factors (for such a simple creature as the fly, Drysophila, there may be ten or twenty millions); conversely, that each of these factors affects an indefinitely large number of characters.

"3. That these factors, or their material bases, are passed from one

generation to another in certain bodies called chromosomes, in the egg and sperm.

"4. That the factors are generally linked together in groups, each chromosome having a group of its own; that they are arranged along the chromosome in a linear series, but sometimes change places with each other by 'crossing over.'"

The difference between factors and characters will probably be noted by the hybridist as significant, and he may possibly enquire as to the precise composition of these never-changing factors; how they originate—this especially; and how many of them co-operate to produce the visible characters of a Cypripedium that he may be working with? The argument is crystallised thus: "Inherited differences in individuals . . . are due to differences in their germ plasms. It is convenient to think of these differences . . . as being due to the presence of certain hypothetical units, which are usually referred to as factors. The factor nowadays is the ultimate unit of Mendelian research." And we would add that it is as elusive as the will-o'-the-wisp. Their existence in the form indicated is pure hypothesis, and the admission that they are in some way controlled by the environment may be taken as an indication of their mutability, and a concession that will be welcomed by students of evolution.

The issue of *Horticulture* for January 15th contains descriptions of ten new varieties of Cattleya Percivaliana that are offered for registration by Messrs. Lager & Hurrell, namely: Aurora, spectabilis, resplendens, Stanley Ranger, superba, grandiflora, gigantea, Expanse, atropurpurea, and Oreol. It is a Public Notice, under the Society of American Florists and Ornamental Horticulturists' Department of Plant Registration, and "any person objecting to the use of the proposed names or registration is requested to write to the Secretary at once. Failing to receive objection to the registration the same will be made three weeks from this date."

The object of such registration is a good one, but whether it secures the desired end is another matter. Numerous varieties of C. Percivaliana have been recorded in various ways, and it is doubtful whether all the new comers would stand the test of comparison. But such so-called varieties are often only individual variations, which have a trick of disappearing, so that if similar forms afterwards receive different names it does not matter much. The idea of keeping complete records of varieties seems impossible in practice.

Speaking of the subject of registration reminds us that a curious

misunderstanding seems to have got abroad—at all events it has reached us by letter from three different sources—namely, that plants must be exhibited in London in order to be recorded; in one case it is asked whether it is correct that the names of plants not so exhibited cannot be recognised. It is not the fact; indeed, the rules expressly provide that the exhibition of a hybrid at a horticultural meeting does not secure publication unless also properly recorded. A new hybrid is considered published when a name is given in accordance with the rules, together with the formula of parentage and a short description or figure, and is recorded in some work or periodical that is sold or circulated in the usual way. Publication in a dated horticultural catalogue is valid, but it is desirable that it should also be published in periodical horticultural journals. The idea, of course, is that the information should be accessible to those who desire it, and it expressly excludes the recognition of names recorded without any information whatever, as is becoming too common.

One correspondent, who is one of our most successful hybridists, remarks that there are so many opinions as to what is right that it is doubtful whether the records can ever be got in proper order, and the mistake has been that the rules were not consistently followed from the outset. Names that are correct under the rules are now being altered in order to make them agree with others that should never have been recognized, or that should have been corrected as soon as the mistake was pointed out. He submits some cases for solution, and we will try to deal with them shortly.

In a recent paper on Philippine Orchids, Mr. Oakes Ames discusses the nomenclature of the Cypripedium group, and horticulturists will be shocked to find him expressing the "hope that Paphiopedilum will be added to the list of genera which one must retain regardless of priority," although he admits that on the basis of priority we were perfectly justified in taking up Cordula for the Tropical Asiatic species. And he mentions four genera of Rafinesque as "not unknown to Pfitzer," who "wrongly referred" three of them "to the synonymy of Paphiopedilum"—almost implying some reason for their rejection. It is surely another example of the fatality that attends everyone who touches the group, for Pfitzer made *all* of them synonyms of Cypripedilum. His knowledge of them was evidently limited to extracting them from the synonymy given under Cypripedium in the *Index Kewensis*, for had he turned to their proper places there he might have seen what they were based upon.

The remark about a "fatality" is no mere figure of speech, for the history of the question is almost a comedy of errors. Linnæus for some

reason rejected the old generic name Calceolus, and, intending to commemorate the slipper of Venus, wrote Cypripedium, overlooking the fact that *pedilon* was the equivalent of a slipper. The correction to Cypripedilum was made over a century later. The species slowly accumulated for some years, until one was introduced by Linden in which the pouch was replaced by an elongated petal, and of this Lindley made a new genus, calling it Uropedium, in allusion to the tailed lip. It eventually proved to be an abnormal state of Cypripedium caudatum.

Then Reichenbach got hold of a tall, Sobralia-like plant, with a slipper-shaped lip, a three-celled, Apostasia-like ovary, and crustaceous, Vanilla-like seeds, on which he based his new genus Selenipedium, and to which he correctly added Lindley's Cypripedium palmifolium. But he also suggested that the other Tropical American species might belong to Selenipedium, and placed them in a distinct section, which he called Acaulia coriifolia. But he retained Cypripedium for garden use. Selenipedium was afterwards adopted in gardens, and shortly afterwards it was discovered that this group was quite distinct.

Pfitzer now appeared, and based a new genus on Reichenbach's section Acaulia coriifolia. This he called Paphiopedilum, but he immediately began to add to it some of the Indian Cypripediums. To this the writer objected, on account of the Apostasia-like ovary of the former, and Pfitzer then gave an enumeration of the species, recognising two sections, and wrongly including two Catasetums and a Cyrtopera in Paphiopedilum. What had originally served as the basis of the new genus was now placed as a small section at the end, a fact overlooked by the writer when afterwards making of it a new genus.

Accepting the essential distinctness of the four genera, which is unquestionable, and, on the basis of priority, Paphiopedilum will have to stand, but not in the sense hoped for by Mr. Ames. It belongs to the Tropical American species so well known in cultivation, and but for a strong claim made that for horticultural purposes the single name Cypripedium be retained, the fine group of C. Schlimii figured at page 41 would have been called Paphiopedilum Schlimii, Pfitzer. The use of the earlier name, Uropedium, is prohibited by the rules, being based on a monstrosity and perpetually misleading. The inclusion of the Indian species under Paphiopedilum was a mistake, and the more regrettable because the earlier name Cordula, based upon Cypripedium insigne, was available. To the claim for uniformity in terminology we would reply that the attempt to secure it has already proved disastrous.

WINTER-FLOWERING CYPRIPEDIUMS.

IN the January number of the *Orchid Review* (page 14) suggestions are invited as to to the lines on which improvements in winter-blooming Cypripediums might most usefully be attempted. At the present time they have attained such a high standard of quality that it seems difficult to make improvements on the best of existing kinds, but undoubtedly they will continue to be made. When one looks back over a series of years, and considers what hybrid Cypripediums were, say, twenty years ago, and then pictures them in an up-to-date collection at the present time, one may well feel satisfaction with the results attained. But we may rest assured that the hybridist will continue to make crosses, with the sole purpose of trying to produce something better than any existing form; and, of course, the finest forms will be used as parents.

But it is a well-known fact that the crossing of two fine flowers does not always ensure a fine offspring. In practice it is often quite the contrary that happens, as there is such a thing as reversion, and often to the most primitive forms. The laws of nature in this respect are remarkable, and most of the best hybrids have appeared as isolated specimens in a batch of inferior seedlings, while some have been raised more by accident than anything else. There are many instances of two albinos producing coloured seedlings, and of highly-coloured parents producing offspring of the most ordinary shades, but with such a mixed parentage as many of the modern hybrids possess it is what we must expect. Some of the characters seem to conflict, and no certain rules can be laid down.

To my mind, it is courting failure to cross dark and light forms together, and when one purposes making a cross they should well consider the results aimed at. With regard to these I would suggest, firstly, size, as a flower to-day, to be any good, must be large; secondly, colour, either light or dark; thirdly, shape and form. It is upon these lines that improvements may be looked for, and then chiefly as surprises. Some particular species and hybrids make better parents than others, and it is by a close study of those which have produced fine offspring in the past that we can best hope to effect improvements on existing kinds. J.T.B.

I agree with you that the day of the Cypripedium is not over. It has to begin—but not until we put less stress on the huge insigne crosses, and encourage more colours of the possible Cypripedium range in giving awards.

JOHN CROMBLEHOLME.

A beautiful series of flowers is sent to illustrate these remarks. The first set comes from Mr. J. T. Barker, gardener to W. P. Burkinshaw, Esq., Hessle, E. Yorks, and all are remarkable for their splendid development. C. Boltonii magnificum, represented by a strong twin-flowered scape, is a charming white, with a very few minute purple dots on the dorsal sepal. C. Queen-Alexandra Hessle var. also bears a very strong twin-flowered scape, in which the characters of C. Charlesworthii and C. Lathamianum are combined, as seen in the nearly white staminode, the broad white dorsal sepal, with a dark purple band and a purple suffusion on each side, and broad, villosum-like petals. It ranks as a variety of C. Ami-Jean, which flowered with M. Duval in 1899. C. Euryades King Edward VII. has villosum-like petals, and the dorsal sepal bears very numerous blackish purple blotches. C. Our-Queen (Leeanum × Stevensii) is a massive flower, with very broad dorsal sepal, covered with minute purple dots, and very broad undulate petals, approaching those of C. Boxallii in colour. One called Sunset, which looks like a form of the variable C. Leander (Leeanum × villosum), is represented by a fine normal flower, and another having two staminodes, two somewhat spreading dorsal sepals, and an upright petal between them. C. chrysotoxum (Lathamianum × villosum), is a very large and striking flower, and C. Golden-Queen, derived from C. aureum virginale crossed with the preceding, is a pretty light yellowish flower, with a narrow brown line down the petals, the dorsal sepal mostly white, with a slight purple line, and the staminode very pale. Lastly, C. Hera × Beeckmanii is an immense flower, six inches across, with villosum-like petals, of great substance, and the disc of the white dorsal sepal with dark blotches below, passing into a lighter purple reticulation above. Mr. Barker remarks: "I don't think Cypripediums of this class will ever become unpopular," and we fully agree.

A charming series of seedlings is sent by the Rev. J. Crombleholme, Clayton-le-Moors, from a group exhibited at the meeting of the Manchester Orchid Society held on January 20th. C. Infanta is from C. Robsonii (insigne × exul) crossed with C. Lathamianum. There are five seedlings, having a round white dorsal sepal, prettily spotted with purple, and spreading petals, suffused and veined with brown on a greenish yellow ground. In three of them the dorsal sepal is slightly concave, with only a little green at the base, and in one of these the white is far in excess of the spotted area. C. Robsonii × Euryades Sander's var. has large, solid purple-brown blotches on the dorsal sepal, and very numerous small spots on the petals, and is very promising. Two seedlings of C. daffrosum (C. Hobartii × Schlesingerianum M. de Curte) are remarkably diverse, one recalling a light C. Leeanum × villosum, the other being dark, and almost a blend of C. villosum and Boxallii, quite a curious difference. C.

Evelyn Ames × insigne Harefield Hall var. is most like C. Leeanum with enlarged petals. C. Troilus formosum has broad villosum-like petals, and a very heavily-blotched dorsal sepal, and is a seedling of much promise. C. illustre (nitens × Lathamianum) is a fine thing, with villosum-like petals, and a broad, closely-blotched Leeanum-like dorsal sepal. Lastly, C. Spicerianum × aureum virginale has broad petals, margined with white and veined with purple, and a very broad white dorsal sepal, with a dark median band and bright purple streaks on each side. This should be taken care of, and the presence of white in the petals should be followed up.

These flowers, beautiful as they are, show to what a preponderating extent the influence of C. insigne is represented in winter-blooming Cypripediums, and the need for introducing a greater range of colour. But here comes in the difficulty that purple is chiefly represented in the summer-blooming kinds, and its introduction might change the period of flowering, and thus defeat its particular object. We would suggest further crossing with C. Fairrieanum and C. Charlesworthii, as neither of them have much green in the flowers, and the latter has already the desired colour in the dorsal sepal.

LANIUM BERKELEYI.—A note was given at p. 357 of our last volume with respect to Lanium Berkeleyi being found on the roots of an imported Lælia purpurata. Mr. E. W. Thompson now writes that there was some mistake in the record, for Mr. Smith informs him that the plant was found on a Cattleya Loddgesii purchased on March 10th, 1899. This tells against the suggested Santa Catherina habit, and it may be added that in October, 1898, a specimen was sent for determination from the collection of the Rt. Hon. J. Chamberlain, with the record that it was "taken from Cattleya Loddigesii." (This was not available when the note was written.) Major-Gen. Berkeley's original plant, sent in 1891, was said to have been found on the roots of C. guttata, and in April, 1895, another came from the Royal Botanic Garden, Edinburgh, as found growing with C. Harrisoniana. A question now arises whether C. Loddigesii should not be read as C. Harrisoniana, for the two have been somewhat confused, and certain importations have been sold under the wrong name. According to M. Forget, C. Harrisoniana and C. guttata are warm-growing species, occurring in the lowlands between the sea and the mountains in the Province of Rio, while C. Loddigesii, of the interior of Sao Paulo and Minas Geraes, is a cool grower (*O.R.*, xv. p. 293). It is hardly likely that the Lanium occurs under both conditions. Another plant appeared with Messrs. Sander in October, 1894, which they thought had come from Pernambuco, but the point requires confirmation.—R.A.R.

CYPRIPEDIUM SCHLIMII.

THE annexed figure represents a group of finely-grown plants of Cypripedium Schlimii, from the collection of Mrs. R. N. Hooper, Stanshawes Court, Chipping Sodbury, Glos. (gr. Mr. J. F. Coles), which is now being disposed of for the benefit of the Red Cross Fund and another war charity (see p. 28). The species was originally discovered by Schlim in 1852, on the eastern Cordillera of New Grenada, at about 4000 feet elevation, and was introduced to cultivation some two years later by Wagener, when collecting for M. J. Linden, of Brussels. Its habit and

Fig. 17. CYPRIPEDIUM SCHLIMII.

floriferous character are well shown in the illustration. The flowers are not unlike those of the North American C. Reginæ, and the colour is blush white, suffused with pink at the base of the segments and on the front of the lip, and streaked with carmine rose round the mouth of the latter. The variety albiflorum was introduced a little later, and has much less rose in the flowers, though it is not quite a true albino. For some years the species remained rare in gardens, and it is said that the stock was increased by seed, opportunity being taken of its habit of self-fertilisation. It has also been taken in hand by the hybridist, and Messrs. Veitch remark that no other Orchid yet brought under cultivation has been the means of producing such remarkable results through hybridisation. The beautiful C. Sedenii (Schlimii

× longifolium) appeared as long ago as 1873, and was followed by five other primary hybrids, C. stenophyllum (with caricinum) in 1876, C. Saundersianum (with caudatum) in 1886, C. Cleola (with Boissierianum) in 1891, C. Unique (with Lindleyanum) in 1893, and C. Stella (with vittatum) in 1894, while among varieties of C. Sedenii may be mentioned porphyreum and candidulum. Coming to secondary hybrids we may note that C. Schlimii and Dominianum yielded the beautiful C. albopurpureum, while C. Sedenii crossed with caudatum gave C. Schrœderæ, the finest of the series. There are about ten other hybrids to its credit, including recrosses with both its original parents, which are known as C. cardinale and C. calurum. In fact C. Schlimii has given rise to a series of showy and free-blooming hybrids, though on account of their considerable size and the amount of room they take up are not so popular as formerly. It is a little unfortunate that they cannot be crossed with C. niveum and its dwarf allies, as such a race of hybrids would be more manageable in size and equally attractive in colour. We are assuming, of course, that the attempt has been made, and at all events numerous failures with other Old World Cypripedes have been recorded. But there is one solitary success that should encourage further efforts, for Selenocypripedium Malhouitri (Harrisianum × Schlimii), raised by M. Eugene Boullet, of Corbie, appears to be a genuine hybrid (*O.R.*, xxi. p. 79). We should much like to see a flower, and the cross should be repeated. Previous crosses between the two groups have either refused to bloom, or when flowers have appeared they have been like those of the seed parent, and thus "false" hybrids. And in one case that has been recorded the seedlings remained small, and could not be got strong enough to bloom.

CYPRIPEDIUM LATHAMIANUM VAR. CARDINAL MERCIER.—A remarkably handsome variety, raised by the Rev. J. Crombleholme, Clayton-le-Moors, Accrington, Chairman of the Manchester Orchid Society, a flower of which has reached us through Messrs. Sander & Sons. It is distinguished by its excellent shape, broad, nearly horizontal petals, and by the shape and rich colour of the dorsal sepal, in which respect it quite approximates to the florist's ideal. The dorsal sepal is over $2\frac{3}{4}$ inches broad, flat, and nearly circular, with the centre and base rich purple, and the upper third and a broad lateral margin pure white. The petals are over $1\frac{3}{4}$ inches broad, reticulated with purple brown on a yellowish ground, and the neat compact lip has similar colours. The white of the dorsal sepal comes from C. Spicerianum, and the absence of green allows the purple to develop, while the rich, shining colours of C. villosum appear in the petals, lip, and staminode. We do not recall its equal, and we congratulate Mr. Crombleholme on raising such a fine acquisition.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE remarks in last month's Calendar relating to temperatures, watering, atmospheric conditions, and cultural hints generally are still applicable. On bright days, however, a slight increase in temperature by sun heat, with slightly more moisture in the atmosphere, will be beneficial, but generally speaking it is advisable to keep everything at rest as far as possible. The proper balance of heat, light, and moisture must be maintained at all seasons to keep the plants in a healthy and thriving condition. Although so far this winter we have not experienced any severe weather, we may do so at any time, and plants that are hastily pushed into growth may suffer or receive a severe check, and premature growth is puny and unsatisfactory.

VENTILATION.—Often during the present month the climatic conditions are very changeable, hence the necessity of considerable attention to the ventilation of the houses, as it is imperative that they should be constantly supplied with fresh air without excessive fluctuations being permitted. Possibly the present month is the worst of the whole year to maintain the different houses in that sweet and healthy condition desirable, as changes are often so rapid, especially in some districts.

WATERING.—With the lengthening days the plants will take up more water at the roots, but care is still necessary, as we may still have lengthy spells of sunless weather and an atmosphere heavily charged with moisture.

POTTING.—With the present month the year's work practically begins, and as the different plants arrive at the desired state they should receive attention, and, although many growers may be short-handed, every effort should be made to keep abreast of the work as the season advances. In the potting—in fact in everything—let thoroughness be the rule, as no good results ever accrue from work half done.

COMPOSTS.—Most growers favour some special material as a rooting medium for their plants, and, as all attain practically the same results, who should discriminate? As long as the different fibres of which our composts are made are clean, porous, and properly placed into position, it matters little, to my mind, whether osmunda, peat, or AI fibre predominates. Whatever the material used, the question of watering must be taken in conjunction with it, for the two, so to speak, run in double harness, and the very best material ever put together may be ruined by the indiscriminate use of the water pot. A continual change of the rooting material is a source of trouble and anxiety, and is not to be recommended. It should be the cultivator's aim to thoroughly master the details of culture of each

class of plants individually, as no good results are attained by continually altering the method of cultivation. Any plants which are in decomposed material should be placed in new, whenever it is observed they are about to make new roots.

ODONTOGLOSSUMS and ODONTIODAS may, for cultural purposes, be placed together, as both succeed under similar conditions, and the remarks made last month are applicable during the present one. O. grande, O. Insleayi, O. Williamsianum, and allied plants that are at rest, will require little water at the roots until growth commences.

CATTLEYAS and ALLIES.—Cattleyas, Læliocattleyas, Brassocattleyas, and allied plants have now attained such numbers, and show such variety of colour, that they are indispensable, as their lovely flowers may be enjoyed the whole year round. The remarks made last month are applicable for the whole of the potting season. Cattleya Warneri, C. Warscewicizii (gigas), L. Boothiana, and L. crispa, as they commence to grow, may have the water supply gradually increased, taking care that the compost becomes dry between each operation.

MEXICAN LÆLIAS are, with me, slightly later than usual this season in producing their flowers, and any that are in need of new material at the roots may have attention as soon as the flowering period is over. I find these plants succeed in all osmunda fibre, pulled into pieces, and potted firmly. I grow them all in shallow pans in preference to baskets or other receptacles.

CYPRIPEDIUMS, as they pass out of flower, should be repotted if the compost is at all decomposed. A suitable mixture was given last month, and if the plants have attention as they pass out of bloom they get established before the hot weather comes upon them.

DENDROBIUMS of the nobile section, although not so popular as they once were, are still most useful, and, when well grown, most beautiful. There are legions of varieties to select from, and a great variety of colour, as in the case of all Orchids taken up by the hybridist. Those which have their flowers in an advanced stage may have water afforded them in more liberal quantities as soon as the flower buds are about half-developed. Before the flower buds attain any size it is advisable to thoroughly clean the plants, as when they are larger many may get damaged. These plants open their blooms quite satisfactorily in a temperature of about 60°, and last much longer either in a cut state, or upon the plants, than when forced into flower in a higher temperature.

CYMBIDIUMS are another group of plants in which the newer hybrids are great improvements upon many of the species, and should be represented in all collections where choice flowers are in request. Any plants that are pushing up new growths, and are in need of new material, should be

attended to when they are seen to be pushing new roots from their base. These plants resent being disturbed at the roots, and should there be room for the new bulbs to develop, and the material is in good condition, the potting may be safely deferred, as they bloom more freely when in a pot-bound condition. The species and hybrids of this useful genus, with the exception of C. Humblotii, delight in a cool position in the Intermediate house, but must be shaded from the direct rays of the sun. If grown in a dry position red spider will attack the leaves, which must be destroyed by sponging from time to time with a weak solution of insecticide. A similar compost to that used for Cypripediums will answer their requirements. Those that are now pushing up their flower spikes may have attention at a later date. They should have water afforded them whenever they become dry.

ONCIDIUMS which have flowered, and have now commenced to grow and produce roots, may be repotted. These plants resent a sour compost, so if the compost is worn out it is advisable to renew it. A similar compost to that used for Odontoglossums is suitable. As they enjoy plenty of light, they are best grown suspended from the roof, and therefore shallow pans are the best receptacles. Most Oncidiums enjoy the temperature of the Intermediate house, but such species as O. Papilio, Kramerianum, Lanceanum, and Cavendishianum do best in the Warm house.

MILTONIAS of the vexillaria section will, as the days lengthen, take up abundance of water, if the plants are well rooted, as they should be. Such varieties as M. v. Leopoldii, superba, and others which produced their flowers too late in the autumn to allow of them being potted then, may now have that attention if they have made new growth. Many of the Brazilian Miltonias, such as M. spectabilis and its variety Moreliana, M. Bluntii Lubbersiana, and others which are now developing new roots, will also be in need of more compost. In repotting, care must be taken that the young roots are not injured, as they are very tender and are easily broken. The same compost as used for Oncidiums is suitable, and at this season the plants are best accommodated in the Intermediate house.

VANDAS AËRIDES, and SACCOLABIUMS.—Any plants of these genera, when showing signs of renewed root action, may have attention as regards repotting or resurfacing. It is not desirable to repot them unless a shift is absolutely necessary, but even in the case of well-rooted healthy specimens it is desirable to renew the compost on the surface after the long season of rest. Where top-dressings of this kind are necessary, care must be taken that the drainage is satisfactory. I am, however, not much in favour of top-dressings, simply for the reason that it makes the watering of plants so much more difficult, and only practise it in exceptional cases. Plants that have become leggy through loss of their lower leaves should be reduced by

cutting away a portion of the stem. This shortening must be governed by the condition of the roots, for it is not desirable to remove them all. The growths should be securely fastened to stout stakes. Use scrupulously clean pots and pans, which must be well drained; place the plants in position, the roots carefully inside the pots, and fill the space with a mixture of clean crocks and live sphagnum moss. The moss must be pressed into the receptacles moderately firmly, as it is desirable that it should grow, and if placed in loosely it often fails to do so. Vanda tricolor, suavis, and cœrulea will do in a warm Intermediate house, whilst Vanda Sanderiana requires a warm position in the Warmest house. All Saccolabiums will be best grown in the Warm house, where Aërides odoratum, Lobbii, virens, Fieldingii, Lawrenceæ, and Sanderianum will also thrive. A. Lindleyanum, A. crispum, A. crassifolium, and A. Warneri delight in an intermediate temperature. These old world Orchids are delightful subjects when at their best, but are not seen as often as their merits deserve.

MASDEVALLIAS that are in need of fresh material at the root may have attention at this season. M. tovarensis, with others of the same nature, should be repotted just as they commence to grow. These are best accommodated at the warm end of the Cool house at all seasons.

PHALÆNOPSIS.—These lovely Orchids are a source of trouble to many growers, but are worth any amount of pains to produce them in good condition. After flowering, the plants should receive a slight rest for a few weeks, and, having no pseudobulbs to support the large succulent leaves, should have sufficient water to keep them plump and healthy. When the plants commence to show signs of growth all in need of new compost should have attention, avoiding too much disturbance of the roots. A clean compost, as advised for Odontoglossums, will answer their requirements. Most failures with these plants are due to faulty conditions. They require a moist and humid atmosphere in the Warm house whilst making their growth, with a drier atmosphere and a little less heat whilst at rest.

SHADING.—Towards the end of the month it will be advisable to have all the shading in position and in proper working order, especially in the south, though here in the north we do not require the use of shading quite so early.

GENERAL REMARKS.—A strenuous warfare must be waged against insect and other enemies. Keep all plants in a sweet and healthy rooting medium, and the temperatures normal; give fresh air on all favourable occasions and water whenever the plants require it. If this is done there is then no reason why anyone, professional or amateur, should not enjoy a fair proportion of success in the most fascinating occupation of Orchid growing.

ORCHIDS AT TUNBRIDGE WELLS.

FIVE years ago we gave an account of the interesting establishment of Messrs. Armstrong & Brown, Sandhurst Park, Tunbridge Wells (*O.R.*, xix., pp. 164-168), and early in the new year we again had the pleasure of paying Mr. Armstrong a visit, when the following notes were taken. We need not repeat the general account of the establishment, but there is evidence of progress on every hand, and visitors to the R.H.S. meetings are familiar with the fine groups and sterling novelties shown by the firm.

There was little to indicate that the days were almost at their shortest when we stepped into a house containing about two hundred plants of the beautiful Cattleya Maggie-Raphael var. alba in full bloom, the result of crossing C. Trianæ alba with C. Dowiana aurea. They vary somewhat in shape, but all have white sepals and petals, with, in a few cases, a just perceptible tinge of blush, and the lip is light rose with yellow veining. And they are as fragrant as they are beautiful, for the heliotrope-like perfume pervaded the house, and was noticed almost as quickly as the bank of colour. About as many were out of bloom. The rest of the house was devoted to spring-flowering Cattleyas and Læliocattleyas, and all were in the most robust health, and promise a fine display of bloom later on. We also noted examples of Brassocattleya Hyeæ, Brassolælia Gratrixiæ, and others in bloom.

It may be interesting to record here that Mr. Armstrong pots the plants annually, and uses A1 fibre as a compost. He commences in the autumn with the early-blooming varieties, and goes straight on until finished. Asked whether this did not result in some being potted at the wrong time, and whether the compost did not sometimes suffer, he replied not if it was kept dry, as it should be at this season. Small pots and annual potting are recommended, and although some would stand over a second year they do not make the same progress in the second season as when potted annually. The Cattleya houses are kept about 60° F. at night, falling to 58° in the morning, the rise during the day time depending on the weather and the amount of sunlight, the latter an important element, and the position is a favoured one in this respect.

In the long corridor, from which all the houses extend, we noticed many healthy Dendrobiums, including a nice batch of D. nobile virginale, also a lot of Cattleyas and allies, all being suspended from the roof. A plant of Cattleya Percivaliana alba with two buds was pointed out and some thriving examples of Cattleya intermedia alba, which succeed here better than in the Cattleya houses. Mr. Armstrong attributes this to the

position, for the corridor, being long and on a slope, there is a constant circulation of air. On a narrow stage behind were a lot of Cypripediums, some interesting things being in bloom.

In the other Cattleya houses there were rows of seedlings suspended from the roof, and in the most thriving condition, while on the stages the general stock is grown, including numerous choice crosses, in all stages up to flowering size. Among them was a batch of Cattleya O'Brieniana alba × Gaskelliana alba, and a lot of very promising white crosses. We noticed a lot of capsules, showing how the work is being followed up. In one house we noted Lælia ancibarina in bloom, having almost the Lælia anceps character, except that the flower is smaller and the ground colour buff. Here were good plants of Lycaste Skinneri alba and L. Ballii in bloom. A batch of healthy Miltonias, including sturdy plants of the fine M. vexillaria G. D. Owen, and numeous other interesting things were also noted.

An Odontoglossum house was particularly interesting, as it contained a number of seedlings, with some Odontiodas, producing their first flower, and mostly remarkable for the richness of the markings. And here was the handsome hybrid that was one parent of Odontoglossum Victory (see *O.R.*, xxiii. pp. 322, 340), bearing a magnificent flower, $4\frac{1}{2}$ inches from tip to tip of the petals, and the latter $1\frac{3}{4}$ inches broad, the shape being excellent and the colour white, heavily blotched with purple. The plant also bore a capsule. Mr. Armstrong believes the parentage is O. amabile × eximium, although he is not absolutely certain, and it stands the test of comparison. A few of the seedlings appeared at the next meeting of the R.H.S., and are recorded on another page. There was also a fine plant of Odontoglossum armainvillierense xanthotes, and examples of Odontioda Armstrongiæ, Joan and Madeline, showing the now familiar variation in colour.

A Cypripedium house was gay with bloom, a lot of C. Helena and C. H. Orchidhurst var. being particularly good, also C. Boltonii, the original C. Juno, and others too numerous to mention.

The seedling house is always interesting, but we had only time to glance at the numerous healthy seedlings in every stage, and note well-flowered plants of the dwarf Epidendrum polybulbon and its yellow variety, the curiously-fringed Bulbophyllum Dayanum, and good examples of Cirrhopetalum gracillimum and C. retusiusculum, both very attractive little plants. Sophrocatlælia Thalia (S. grandiflora × Lc. Cappei) was a little gem, bearing four brilliant orange-scarlet flowers.

In the large north house at the back of the corridor we noticed a lot of sturdy Odontiodas, Odontoglossums, Cymbidiums, and cool Orchids generally, all in excellent condition, and promising a fine display of flowers in the spring. But the display of bloom extends throughout the year in such a progressive and up-to-date establishment.

MEXICAN LÆLIAS.

THE Mexican Lælias have for some time been making a fine display in our collections, and it may be interesting to reproduce photographs

Fig 18. LÆLIA FINCKENIANA.

Fig. 19. L. GOULDIANA. Fig. 20. L. ANCEPS SANDERIANA.

of a group of three charming kinds, two of them among the most popular in cultivation, and the third a rare natural hybrid, of which few examples are known.

L. GOULDIANA (fig. 19) was introduced to cultivation about twenty-eight years ago, and for a long time passed as a supposed natural hybrid between L. anceps and L. autumnalis, though there was always some uncertainty

about it, especially when it was pointed out that the two grow in very distant districts. A few years later Messrs. Sander and Sons obtained a large importation, which threw further doubt on the matter, and the idea had to be given up when Sir George L. Holford raised a different hybrid by crossing L. anceps and L. autumnalis. This was called L. Alexanderi (*O.R.*, xx. p 16). It is now believed to be a local species, most allied to L. autumnalis. It flowers in the winter, and has proved a valuable acquisition for cutting.

L. ANCEPS SANDERIANA (fig. 20) represents the white type of the species, and is said to be a native of the Pacific coast of Mexico, far from the habitat of the original purple type. It was introduced by Messrs. Sander as long ago as 1885, and in January, 1887, it received a First-class Certificate from the R.H.S. The flowers are white, with the usual markings on the disc of the lip, and a rose-purple blotch on the front lobe, but numerous variations have appeared out of the same importations, some of them without any purple on the front of the lip.

L. FINCKENIANA (fig. 18), appeared in the collection of the late C. W. Fincken, Esq., Hoyland Hall, Barnsley, and received an Award of Merit from the R.H.S. in December, 1892, and a First-class Certificate a year later. It is said to have been picked out of an importation of L. anceps by Mr. Fincken, on the supposition that it was a natural hybrid, because of the distinct appearance of the pseudobulbs and leaves. On flowering, it was seen to be intermediate between L. albida and a white L. anceps, a character that it well shown in the figure. The locality was not stated. M. Juan Balme afterwards found what he regarded as a similar form in the State of Oaxaca, and considered it to be a hybrid between L. anceps and L. albida, which grow together there (*O.R.*, xv. p. 303). This we have not seen, but the original form passed into the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow.

ABNORMAL ORCHID FLOWERS.—Two curiously abnormal flowers are sent by Messrs. Sander & Sons, St. Albans. The first is a hybrid Cattleya of the labiata group, in which the lip is united to the column to beyond the middle, and is then broken up into three distinct lip-like bodies, each rich crimson-purple in colour, with some yellow in the centre. The sepals and petals are white, and normal in shape, and the column bears a normal anther. Whether the peculiarity is permanent remains to be seen. The other is a twin-flowered Cypripedium of the insigne type, but in one flower a petal is missing, and the lower sepal is enlarged and blotched like the dorsal on the side where the remaining petal is, while in the other flower there is only half a lip, this half being united to the side of one of the petals. The abnormality in this case may arise from the union of two flowers.

SOCIETIES.

ROYAL HORTICULTURAL.

THE opening meeting of the new year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 11th, and produced a particularly fine display of Orchids, including one of the finest groups of winter-flowering kinds yet seen in the Hall, for which Messrs. Charlesworth & Co. were awarded a Gold Medal. Six other medals were given, with one First-class Certificate, four Awards of Merit, and one Seedling Commendation.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., R. A. Rolfe, R. G. Thwaites, F. J. Hanbury, Pantia Ralli, A. McBean, F. M. Ogilvie, T. Armstrong, Walter Cobb, J. Charlesworth, W. H. Hatcher, H. G. Alexander, C. H. Curtis, J. E. Shill, W. P. Bound, A. Dye, S. W. Flory, W. Bolton, R. Brooman White, and Gurney Wilson.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), staged a group of well-grown plants, to which a Silver Flora Medal was awarded. It contained the fine Brassocattleya Cliftonii albens, the brilliant Sophrocattleya Saxa, well-flowered examples of Masdevallia Courtauldiana, Laucheana and melanopus, several fine forms of Odontoglossum crispum, a richly-coloured form of Odontioda Madeline and O. Joan, Cypripedium philippinense, C. Daisy-Barclay, C. Leeanum J. Gurney-Fowler, the fine C. Æson giganteum, and others.

H. J. Elwes, Esq., Colesborne, Cheltenham (gr. Mr. W. Walters), sent two profusely-flowered examples of Pleione humilis, one with white and the other with lilac ground colour and the usual brown markings on the lip. The plant was collected at 9,000 altitude in Sikkim by Mr. Elwes.

G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol (gr. Mr. Coningsby), sent fine examples of the natural hybrids Cymbidium Cooperi and C. roseum, which were imported with C. insigne, also C. Capella (Wiganianum × insigne), bearing its first flowers, which are greenish yellow with a zone of red round the front of the lip inside the margin.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent the richly-coloured Odontoglossum Edna var. Rosita, O. Humeanum, and Sophrocattleya Carona (Sc. Dorila × Lc. rubens), a promising little plant, flowering within a period of three years from the time the seed was sown. The flowers are rose, with some cream on the sepals, and the lip purple crimson with a yellow base.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group, on the large stage to the left of the entrance, remarkable alike for the number and quality of the exhibits and for the artistic arrangement, a Gold Medal being deservedly awarded. The centre consisted of numerous white forms of Lælia anceps, Odontoglossum armainvillierense xanthotes, and others, and round these were placed a number of well-grown Calanthe Harrisii, C. Veitchii, and others. On either side were brightly-coloured Cattleyas, Brassocattleya Fourneiæ, and Læliocattleyas, while above and at the ends were numerous Odontoglossums, Odontiodas, and Oncidiums, arranged on a support as if growing on the branches of trees, the arching sprays producing a very graceful effect. The front consisted of hybrid Miltonias, Cypripediums, and other Orchids, including a nice lot of C. Fairrieanum, Sophronitis grandiflora, and others, with an edging of well-grown Masdevallia tovarensis and Oncidium cheirophorum, the whole being arranged with graceful foliage plants. We also noted some fine forms of Odontoglossum crispum xanthotes, O.c. Charlesworthii, Oncidium tigrinum, Vanda Amesiana, Odontonia Langowoyi, &c.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, including examples of Vanda cœrulea, the handsome Læliocattleya Alex, a brilliant Oncidioda Cooksoniæ, forms of Lælia anceps, L. Gouldiana, Calanthe Harrisii, a finely-grown Odontoglossum spectabile, well-flowered example of Masdevallia tovarensis and Schrœderiana, Cypripedium Leeanum, some brilliant Cattleya Trianæ, and others (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a fine group, including good examples of Cymbidium Alexanderi, Schlegelii, Doris, and Gottianum, a fine Zygopetalum intermedium, Odontioda Lambeauiana and Diana, Odontoglossum triumphosum and O. crispum xanthotes Charlesworthii, with other showy things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a showy group, including a fine example of Miltonia Warsewiczii, Cattleya Snow-Queen, a series of beautiful Odontoglossums, Odontioda Devosiana, Cymbidium Albatross (Gottianum × grandiflorum), a promising hybrid having white flowers tinged with pink, and spotted with purple on the lip, the rare Ornithidium coccineum, the dwarf Epidendrum polybulbon, Otochilus albus, Masdevallia Courtauldiana, some good Cypripediums, &c. (Silver Flora Medal).

Mr. H. Dixon, Wandsworth Common, staged an interesting group, including a good Læliocattleya rubens, Cypripedium Niobe, C. Leeanum, good examples of Odontoglossum crispum, the richly-coloured O. George-Day (crispum × Rossii), and a few others (Silver Banksian Medal).

Mr. C. F. Waters, Deanlands Nursery, Balcombe, staged a small group of Odontoglossums, Vanda cœrulea, Cypripedium insigne Sanderæ, C. i. Harefield Hall var., and others (Bronze Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent three promising seedling Odontoglossums, bearing their first flower, O. King Albert (Armstrongiæ × crispum Luciani), a very round flower, handsomely blotched with purple on a white ground, O. Peerless var. magnificum and O. Peerless rubrum.

Messrs. Flory & Black, Orchid Nursery, Slough, sent Cypripedium Glorita, a fine hybrid of C. Calypso.

Messrs. Hassall & Co., Southgate, sent the handsome Cypripedium Gaston Bultel, C. Euryades New Hall Hey variety, and two C. Minos Youngii.

Mr. G. W. Miller, Wisbeach, sent a good Cypripedium Cravenianum.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA ANTINOUS (Lc. Myra × C. Enid).—A handsome hybrid, bearing an inflorescence of four large yellow flowers, slightly tinged with copper, and the lip deep claret purple, with a strongly undulate yellow margin. The colour of Lc. Myra is largely retained, but the other parent has given an increased breadth to the segments. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CATTLEYA CHOCOENSIS ALBA MCBEAN'S VAR.—A very handsome white form, having broad segments and the disc of the lip chrome yellow.

CATTLEYA PERCIVALIANA GRANDIFLORA.—An exceptionally large form, having flowers of excellent shape, and the colour bright rose purple, with a large maroon blotch in front of the orange yellow disc. Exhibited by Messrs. Stuart Low & Co.

LÆLIA FLAVIANA (Iona × flava).—A fine hybrid, bearing a spike of six well-shaped flowers, with broad, bronzy yellow segments, veined and suffused with purple, especially on the petals, and the expanded undulate lip deep claret purple. Exhibited by E. G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson).

ODONTIODA IRENE VAR. GLORITA (Odm. Uroskinneri × Oda. Charlesworthii).—A brilliantly-coloured hybrid, most like the Odontoglossum in shape, with dark chocolate-purple sepals and petals, and a deep rose-coloured lip. Exhibited by Messrs. Flory & Black.

SEEDLING COMMENDATION.

ODONTOGLOSSUM EXULTANS ORCHIDHURST VAR. (crispum × excellens).—A handsome hybrid, with broad yellow segments, and the upper two-thirds covered with partially suffused red-brown blotches, and the front of the broad lip white. Exhibited by Messrs. Armstrong & Brown.

At the meeting held on January 25th there was again a good display of Orchids, including six medal groups, but only one Award of Merit, and

one Seedling Commendation were awarded by the Orchid Committee.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, F. J. Hanbury, Pantia Ralli, A. McBean, W. Cobb, T. Armstrong, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, J. E. Shill, E. H. Davidson, C. H. Curtis, S. W. Flory, W. Bolton, C. J. Lucas, R. Brooman White, Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., and R. A. Rolfe.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier), staged a fine group of Cymbidiums, raised in the collection, to which a Silver Flora Medal was given. It contained about two dozen plants of C. Queen of Gatton (insigne × Lady Colman), including forms with a light yellow ground and others suffused with pink, C. gattonense, C. Coningsbyanum, C. gattonense × grandiflorum, most like the latter, and examples of C. Lady-Colman Golden-Queen, forming a very effective display.

Miss E. Wilmott, Great Warley, sent a plant of Oncidium Cebolleta, a curious species with erect, terete leaves, and bright yellow flowers with red blotches on the sepals and petals.

Messrs. Armstrong & Brown, Tunbridge Wells, sent a choice group, including Odontoglossum Jasper splendens and O. Martius (amabile × Jasper), both handsomely-blotched seedlings bearing their first flower, good examples of Cattleya Maggie-Raphael alba and C. Percivaliana alba, Brassocattleya Hyeæ, Cypripedium Cupid and C. Helena Orchidhurst var., good examples of Miltonia Bleuana, Odontioda Cupid, Odontonia brugensis, Læliocattleya bella, Trichopilia fragrans var. nobilior, Epidendrum polybulbon, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of well-grown Orchids, including two Odontonia Langowoyi, each with two spikes of fourteen and fifteen flowers, Odontoglossum Lambeauianum, O. Louise, and the charming O. crispum xanthotes, Odontonia Zenobia, Joan, and Royal-Gem in richly-coloured examples, the brilliant Sophrocattleya Saxa, Cypripedium Tigris (Mrs. Wm. Mostyn × Earl of Tankerville), and others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group, including some well-grown Calanthes and white Lælia anceps, Odontioda Lutetia, several brilliant Sophronitis grandiflora, Oncidium divaricatum, and a number of choice Cypripediums in well-grown examples (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, including Cymbidium Gottianum, C. Schlegelii, and others raised in the establishment, among which C. Alexanderi roseum was remarkable for the suffusion of rose in the segments, some good forms of Lælia anceps, Odontioda Diana, Joan, and Floryi, the latter with a strong panicle of brilliant flowers, a profusely-flowered Lycaste Barringtoniæ, two good Oncidioda

Cooksoniæ, Brassocattleya Doris, Odontoglossum Aliciæ, some good scedling O. crispum, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including some well-flowered Lælia anceps and L. Gouldiana, the rare L. Lundii, Cymbidium Cooperi, C. Albatross (Gottianum × grandiflorum), a well-bloomed Lycaste mesochlæna, Odontoglossum brevifolium, and some good hybrids, Eria paniculata, Oncidioda Cooksoniæ, a selection of Cypripediums, and some Dendrobium Wardianum at the back (Silver Flora Medal).

Messrs. Flory & Black, Slough, showed a good Odontoglossum armainvillierense, Masdevallia macrura, M. polysticta, Scaphosepalum pulvinare, and Brassocatlælia Simone (Lc. Hippolyta × Bc. Sedenii) with flame-coloured flowers and the front lobe of the lip ruby-red, fringed and undulate.

Messrs. Hassall & Co., Southgate, sent a good Cattleya Maggie-Raphael alba, Cymbidium Diana (Pauwelsii × Veitchii), and Cypripedium Moira (Priam × bingleyense), a brilliant claret-red flower of good shape, and the leaves tesselated.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, sent Cattleya Trianæ The Baron, a large and handsome form, C. Percivaliana alba, and Cypripedium Aisne (Leeanum Clinkaberryanum × Mrs. Wm. Mostyn).

Mr. G. W. Miller, Wisbech, showed a seedling Cypripedium of good shape, with a heavily blotched dorsal sepal.

Mr. C. F. Waters, Balcombe, staged a good group, including forms of Odontoglossum crispum, Lycaste Skinneri, Lælia anceps, Vanda cœrulea, Dendrobium Wardianum, and a few Cypripediums.

AWARD OF MERIT.

CATTLEYA TRIANÆ ROEBLING'S VAR.—A very fine form, with very broad, rosy-lilac segments, the petals having a broad purple band at the apex, and the lip rose-purple with a deep yellow throat.

SEEDLING COMMENDATION.

ODONTOGLOSSUM ANZAC (eximium × Colossus).—A handsome seedling bearing its first flower, which has broad segments, heavily blotched with reddish claret on a blush white ground, and the lip white, with red-brown blotches in front of the yellow crest.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, January 6th, 1916, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, J. Evans, P. Foster, A. R. Handley, A. Hanmer, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch

(gr. Mr. W. Gilden); S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); A. Hanmer, Esq., Chester (gr. Mr. B. Wilson), and Messrs. Cypher & Sons, Cheltenham, for very fine groups of winter-flowering Orchids, in which Cypripediums and Odontoglossums were strongly represented, with a few Odontiodas, Calanthes, Mexican Lælias, and others.

A Silver Medal was awarded to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for a group of choice Cypripediums.

Bronze Medals were awarded to F. A. Hindley, Esq., Bradford, and Messrs. A. J. Keeling & Sons, Bradford, for good groups, consisting largely of Cypripediums.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); Messrs. Sander & Sons, St. Albans, and Mr. W. Shackleton, Highfield, Bradford, the latter consisting of a number of promising seedling Odontoglossums.

A number of fine things appear in the Award List.

FIRST-CLASS CERTIFICATES.

Cypripedium Cavalier var. Mrs. S. Gratrix (Euryades × Earl of Tankerville), a noble flower, having a round, heavily spotted dorsal sepal, margined with white; from S. Gratrix, Esq.

Brassocattleya Doris (C. Mendelii × Bc. The Baron), a huge, well-set flower, with broad, well-fringed lip, and having brilliant lines of colour in the throat; from P. Smith, Esq.

AWARDS OF MERIT.

Cypripedium Wm. Rees (Hitchinsiæ × Milo), C. Lord Wolmer Worsley's var. (Hera × Leeanum), and C. viridissimum Carter Place var. (aureum × villosum auriferum); from Tom Worsley, Esq.

Odontoglossum crispum Janua; from R. Ashworth, Esq.

Cypripedium Nydia var. Gratrixiæ (Niobe × Leeanum); from S. Gratrix, Esq.

Odontioda Diana Haddon House var.; from P. Smith, Esq.

AWARD OF APPRECIATION.

Odontoglossum Anzac (parentage unknown); from P. Smith, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers (gr. to O. O. Wrigley, Esq.) for Lælia Gouldiana and Calanthes in variety.

At the meeting held on January 20th the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, P. Foster, A. R. Handley, A. Hanmer, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift, H. Thorp, G. Weatherby, and and H. Arthur, Sec.).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Silver-gilt Medal for a group of Odontoglossums of the crispum section, and a lot of choice Cypripediums.

The Rev. J. Crombleholme. Clayton-le.Moors (gr. Mr. E. Marshall), was awarded a Large Silver Medal for an interesting group of Cypripedium seedlings, all home-raised, including C. Maudiæ coloratum, velatum, apiculatum atratum, Spicerianum × aureum virginale, Beeckmanii × insigne, Euryades × insigne-Exul, Infanta (insigne-Exul × Lathamianum), daffrosum (G. H. Hobart × Mdme. de Carte), Troilus, and other interesting things.

S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field), was also awarded a Large Silver Medal for a fine mixed group, consisting of Odontoglossums of the crispum section, including xanthotes, Charlesworthii, and blotched varieties, and choice Cypripedium, with Lycaste Skinneri, Mary Gratrix, and others.

Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), staged a group of Cypripediums, including Eurybiades Victoria, viridissimum, W. Rees, and others, a Large Silver Medal being awarded.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a group of choice Cypripediums, including some unnamed seedlings.

F. A. Hindley, Esq., Bradford, was awarded a Silver Medal for a group of choice Cypripediums.

F. Houghton, Esq., Appleton (gr. Mr. W. Maddock), staged Cypripedium Dingle Gem, and Zygopetalum Mackayi Houghton's var.

J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), staged Odontoglossum crispum var. J. J. Bolton (c. Empress of India × c. Rossendale), and a blotched hybrid.

Mrs. S. Gratrix, Whalley Range (gr. Mr. W. W. Field), sent the fine Cypripedium Rossetti var. Mrs. S. Gratrix.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver-gilt Medal for a fine group of Cypripediums, Cymbidium Gottianum and Wiganianum, Lælia anceps Stella and Sanderiana, Calanthe Bryan, Harrisii, and Wm. Murray, Dendrobium Cassiope, Oncidium cheirophorum, Sophronitis grandiflora, Brassavola glauca, and others.

Messrs. A. J. Keeling & Sons, Bradford, was awarded a Bronze Medal for a group of choicé Cypripediums.

Mr. W. Shackleton, Highfield, Bradfield, staged a few seedling Odontoglossums, and Cypripediums.

FIRST-CLASS CERTIFICATE.

Cattleya Trianæ var. General Townsend, a huge flower of good form and rich colour, the finest of its section yet seen in the north; from S. Gratrix, Esq.

AWARDS OF MERIT.

Cypripedium Venus var. Cupid, C. Queen of the Belgians Carter Place var., C. Mrs. F. Godman, C. Alliance (Alcides × Leeanum Clinkaberry-anum), and C. Euryades Victoria; from Tom Worsley, Esq.

Cypripedium illustre var. Alexis, and C. Lord Wolmer, St. Mary's var.; from the Rev. J. Crombleholme.

Cypripedium Conquest Woodside var. (Leeanum × Tankerville); from F. Houghton, Esq.

AWARD OF APPRECIATION.

Læliocattleya Mygdon Ashworth's var.; from R. Ashworth, Esq.

CATTLEYA GENERAL-JOFFRE.—This is a very beautiful Cattleya raised by M. Ch. Maron et fils, Brunoy, France, and exhibited at a meeting of the Société National d'Horticulture de France on November 11th last, when it received a Certificate of Merit, with felicitations (*Journ. Soc. Nat. Hort. France*, 1915, p. 167). The parents are recorded as C. Fabia alba var. Madame Ed. Debrie crossed by an unnamed C. Rex hybrid. The plant was flowering for the first time, the inflorescence bearing two medium-sized flowers, with ochre-yellow sepals, cream-white petals, about half as broad as long, and a well-displayed lip, of intense purple colour, and the throat bright yellow, with some purple lines at the base. It is described as of excellent form, and one of the most beautiful hybrids yet obtained. M. Maron writes us that he has no record of the supposed C. Rex hybrid that was used as the pollen parent, but he mentions those that have been raised by him from from the latter species. There is the original C. Halevy (Mendelii × Rex) which flowered as long ago as 1900; a var. Gismonda, from the same parents; C. triumphans (Dowiana aurea × Rex); C. Gaskelliana alba × Rex—which will be a variety of C. Pearl—and C. flavescens × Rex. It is difficult to suggest the parentage without seeing a flower, but of the foregoing C. triumphans seems the most likely, on account of the strong influence of C. Dowiana, and the shape and colour of the petals. Perhaps M. Maron will be able to send a flower when it blooms again. C. triumphans, it may be remembered, was figured at page 313 of our last volume.

CATTLEYA ANDROMAQUE (TRIUMPHANS × WARSCEWICZII ALBA).—This is a very beautiful hybrid, raised by M. Ch. Maron, Brunoy, France, which received a First-class Certificate at Paris on September 9th last. M. Maron writes that he forwarded to us one of the flowers, but unfortunately it never reached us, doubtless owing to the abnormal conditions of the post caused by the war. M. Maron exhibited a variety called C. Andromaque superba at the same time.

LÆLIA ANCEPS SCHRŒDERÆ.

A BRILLIANTLY-COLOURED variety of Lælia anceps is sent from the Royal Botanic Gardens, Glasnevin, by Sir Frederick W. Moore, who remarks that it was obtained as L. anceps Amesiana. The flower is of medium size, and rose-purple in colour, with broad, ovate petals, and the front of the lip rather narrow, and of an intense maroon purple. It has too much colour for L. a. Amesiana, and we believe it to be L. a. Schrœderæ, a variety that was described by Reichenbach in 1887 (*Gard. Chron.*, 1887, i. p. 72). Reichenbach remarked: "A very grand variety of Lælia anceps. Sepals lightest white rose; petals rose with purple tips; lip with a brown disc, a yellow area at each side, a fine warm purple to the side lobes, and an exceedingly dark glorious blackish purple front lobe." It was dedicated to Baroness Schröder.

CYPRIPEDIUM MURIEL VAR. RICKARDSII.—When describing the handsome hybrid Cypripedium Rickardsii (page 30) we overlooked our record of an earlier hybrid from C. Hera (Euryades) × Cynthia, namely, C. Muriel, which was shown by Sir George L. Holford, K.C.S.I., at the R.H.S. Show of autumn-blooming Orchids in November, 1912, and gained an Award of Merit (*O.R.*, xx. p. 373). That is recorded as most like C. Hera in general character, and having a broad white dorsal sepal with large chocolate purple blotches. (By some mischance the name has got into Cattleya in the Index.) The one from Mr. Rickards, which must be called C. Muriel var. Rickardsii, shows more of the suffused Charlesworthii colour in the dorsal sepal.

ONCIDIUM VARICOSUM VAR. INSIGNE.—We have received flowers of a handsome form of Oncidium varicosum from the collection of Alderman William Bolton, Wilderspool, Warrington. They belong to the variety insigne, which was described in 1898 (Rolfe in *Orch. Rev.*, vi. p. 27), it having appeared successively in the collections of the Royal Botanic Gardens, Glasnevin, Mr. H. Druce, St. John's Wood, and Mr. Wm. Brooks, Weston-super-Mare. It differs markedly from the type in having a large crimson blotch surrounding the crest, which sets the flower off to great advantage, and is apparently more than a mere casual variation, but we are still without information as to its exact origin. It would be interesting to know whether it is found in importations of the type or occurs in some different locality.—R.A.R.

LYCASTE SKINNERI ALBA.

A QUESTION has been raised as to whether there may not be a white-flowered Lycaste allied to L. Skinneri in Guatemala. Our correspondent, Mr. T. B. Cockerell, Boulder, Colorado, writes:—"A plant

Fig. 21. LYCASTE SKINNERI ALBA.

brought by my wife from Guatemala has bloomed twice, and differs from L. Skinneri from the same country, not only in colour, but also in the much reduced lateral lobes of the lip, and the much larger bract. The lip of alba is suffused with orange at the extreme base, and the column is very faintly suffused with purplish, otherwise the whole flower is pure white.

So far as I can gather, both plants are found wild in Guatemala, where they are collected by the Indians, and sold in Guatemala City. Of course there may be a white variety of L. Skinneri, presenting otherwise the exact characters of that species, but it seems that our white plant is more than a mere colour variety." He sends rough sketches of the lip of the two, alba showing a longer front lobe and considerably reduced side lobes, but as L. Skinneri varies somewhat in this respect, and as albinism is a condition that may operate on quite distinct forms, we suspect that it is not more than a variety. We know that the plants of L. Skinneri alba in cultivation are picked out of importations of the species when they flower, and Mr. E. V. Low recently told us of a few plants that he acquired in this way. We know also that they are not all identical in shape, as they would be if they were subdivisions of one original plant. The annexed figure represents a plant grown by Mr. E. Rogers, gardener to O. O. Wrigley, Esq., Bridge Hall, Bury, which is one of the best that we ever remember to have seen.

A DOUBTFUL CATTLEYA.

I READ with great interest the article on Cattleya labiata from Ceara at page 30 of your January issue. As a member of the firm of Knight & Struck, of New York, I tendered last spring for a large number of Orchids for a public Institution in this country. Part of the tender was awarded to us and part to a collector in South America. The tender included Cattleya Harrisoniæ. Some few weeks ago I happened to call at this Institution, and was shown what had been delivered for C. Harrisoniæ. Some of the plants were in bloom. To my surprise the bulbs resembled those of a hybrid between C. labiata and C. Harrisoniæ, but the flowers borne on a long stem—similar to C. superba—short but stout bulbs, but the flowers answered the exact description of your correspondent, Mr. J. Simao da Costa. I have made arrangements to get a specimen plant of this particular importation, and I am in hopes to give you more detail when it flowers, this coming fall. I should be glad to get some other Orchid lover's views on the matter.

THOMAS KNIGHT.

Rutherford, N.J., U.S.A.

[We shall await further information with interest, together with a dried flower if possible. We cannot suggest a name from the above, and C. labiata and C. Harrisoniana (Harrisoniæ is a later name) grow so far apart that a natural hybrid between them is out of the question. And they are so distinct in habit that they should not be confused together.—ED.]

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during February, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on February 3rd and 17th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m. The following meeting is fixed for March 2nd.

We learn that part of the Philippine Orchids exhibited at the Panama Exhibition, alluded to at page 14, will be taken by Major-Gen. Franklin Bell, of San Francisco, a gentleman who is much interested in Orchids.

A photograph of Brassavola nodosa by Mr. M. J. Pope, Orchid grower to Mrs. B. B. Tuttle, Naugatuck, Conn., U.S.A., appears in *Horticulture* for December 28th. It is a very graceful Central American species.

From the same source we learn that many choice Orchids and Roses were used at the wedding of President Wilson and Mrs. Galt. The corsage bouquet worn by the bride was of Orchids, and Cattleyas ornamented the wedding cake.

THE JOURNAL OF HORTICULTURE, we regret to learn from a note in its last issue, has decided to suspend publication during the period of the war. The Journal was originally established in 1848, by the late George W. Johnson, under the title of the *Cottage Gardener*, and has enjoyed a long period of success under several able editors.

We regret to hear of another tragedy of the war. A French Orchidist, who has been a subscriber to the *Orchid Review* for the last ten years, is reported as wounded and missing. His fate is still uncertain, but our informant states that he is believed to be either a prisoner of war in Germany or dead.

We are glad to learn that the son of M. Ch. Maron, Brunoy, France, who has been at the front since the beginning of the war, is safe and in good health up to the present.

We have received from Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, the Catalogue of the Stanshawes Court Collection of Orchids,

the property of Mrs. R. N. Hooper, Chipping Sodbury, Glos., to be sold for the benefit of the British Red Cross Fund and the Order of the Hospital of St. John of Jerusalem in England (see page 28). The collection was formed by the late R. N. Hooper, Esq., and consists of about 2000 plants of the usual showy genera, including a few seedlings raised in the collection. The plants are divided up into about 400 lots, all being priced.

In addition to the photograph of Cypripedium Schlimii reproduced at page 41, we have received, through Messrs. A. J. Keeling & Sons, another, showing three remarkably fine plants of Epidendrum vitellinum majus, which is grown with remarkable success in the collection of Mrs. R. N. Hooper, at Stanshawes Court. The branched scapes are said to be two feet high, and the pseudobulbs and leaves show remarkable vigour. The plants are said to have been grown from small imported pieces, and have flowered annually. The photograph is greatly reduced, and owing to the nature of the background is unsuitable for reduction.

The Massachusetts Horticultural Society is making preparations for a great Exhibition to be held next May. In addition to the regular schedule, some special prizes are announced, and among them are the following :—

Orchids: Group arranged for effect, covering 200 square feet. Any foliage plant may be used. Prizes contributed by E. B. Dane, A. W. Preston, and H. E. Converse. 1st, Gold Medal and 200 dollars; 2nd, Silver Medal and 100 dollars.

"CATTLEYA PERCIVALIANA ROEBLINGIANA.—Sepals and petals pure white, lip rose and crimson purple with a broad white border. Discovered December, 1915." This is the description, from *Horticulture* of January 1st, of a Cattleya that is submitted for registration by Messrs. Lager & Hurrell, Summit, New Jersey. A note concerning ten other varieties will be found on page 35.

From the report of the Council of the Royal Horticultural Society, to be presented at the Annual Meeting to be held on February 8th, we learn that the Spring Show will be held at Chelsea on May 23, 24, and 25, but, owing to the scarcity of labour and other difficulties, the Society may have to forego the luxury of the Great Tent, and revert to a series of large marquees. The Summer Show has been arranged for July 4, 5, and 6, at Holland House, Kensington, but it is pointed out that this, like all other meetings of thc Society, may possibly be over-ruled by the exigencies of the times, in which case as long a notice as possible will be given to the press.

The LAWRENCE MEDAL for 1915 has been awarded to Mr. J. Gurney Fowler, of Brackenhurst, Pembury, Kent, for his magnificent exhibit of Orchids at the last Chelsea Show.

The "PRELIMINARY RECOGNITION" is thus announced. "The use of a card bearing these words has been established for the purpose of recognising 'Young plants' and 'Seedlings of promise,' and having them systematically recorded to the credit of their original raisers, introducers, or owners, before they arrive at a stage when a definite Certificate or an Award of Merit could properly be bestowed."

"PRITZEL.—The revision of Pritzel's 'Iconum botanicarum Index' has not been forgotten, but, under the strained conditions prevalent both in this country and abroad, it is felt that the present is not an opportune time for commencing the work of revision; it has therefore been decided that during the continuance of the war further steps should be deferred, save the collecting of funds from every available source."

The Council, having been informed that most Nurserymen and Seedsmen value the award of the Society's Medals as much as, if not more than, the Silver Cups usually awarded at the Chelsea, Holland House, and a few other meetings, have resolved to adopt the suggestion, and will accordingly confine the presentation of Cups in 1916 to Amateurs only, unless any specific schedule indicates otherwise. Gold and Silver Medals will be awarded to Nurserymen and Seedsmen as heretofore.

The personnel of the Orchid Committee is little changed from that of the preceding year, the alteration being the retirement of Mr. W. P. Bound, and the election of Mr. Ernest R. Ashton, of Broadlands, Camden Park, Tunbridge Wells. Mr. Ashton is an enthusiastic amateur, and a frequent exhibitor at the Society's meetings.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.H.S.—We have obtained some information about the plants, but a note on the question is unavoidably postponed.

C.A.—The flowers are: 1, Comparettia falcata, Pœpp. & Endl.; 2, Eriopsis rutidobulbon, Hook., *Bot. Mag.*, t. 4437. We need not say how pleased we should be to name others from such historical ground. Many of the quaint botanical species have probably been named, but the types have been locked up in the Reichenbschian Herbarium, and are still inaccessible. But there are doubtless many novelties, and specimens dried in this way with notes are very useful. Those dried without cotton wool in contact with the flowers are much the best.

Mrs. E.J.T.—Eria elongata, Lindl., a rare Indian species.

E.A.—Please send the flowers with the records for incorporation.

Beta.—The varieties of Lælia anceps are very numerous, and a classified list of 34 of the principal ones will be fonnd at pp. 50-53 of our fourth volume.

Several Correspondents are answered in the preceding pages, and several notes are unavoidably postponed.

Photographs received, with thanks.—A.J.K.

Ch.M.—Many thanks. The matter has been duly attended to, and the flowers will be very acceptable.

The Orchid Review

VOL. XXIV. MARCH, 1916. No. 279.

OUR NOTE BOOK.

CONSIDERABLE interest has been aroused by the discussion initiated on page 14 as to the lines on which improvements in winter-blooming Cypripediums might best be attempted, and the present issue contains some further notes on flowers that have been submitted to us. A correspondent remarks that such discussions make for progress, and he suggests that other subjects should be selected for discussion from time to time. It is a good idea, and as Dendrobiums are the plants of the moment, and are well represented in the present issue, we invite suggestions as to possible lines of improvement, particularly as to an increase in the range of colour in the hybrids of what may be termed the nobile group, this useful species being more or less represented in the majority of them. The introduction of yellow, largely through D. signatum, was a welcome improvement, and hybrids of this type have increased of late, though there is still plenty of room for increased variety.

The remarks at page 34 on "Mendelism up to date" suggest to "Hybridist" the question as to where we stand now. Long ago we were told that the limitations of the hybridist were largely due to neglect of the facts of Mendelism, and we were recommended to begin again on correct lines. But if "a large part of the Mendelism that is current at present is in some way out of date" how shall we find the real thing, and when found how will it help us? Mendelism has never yet answered the question as to how the hybridist is to separate the qualities he is in search of from the undesirable qualities that are also present in the plants that he perforce must work with, and the discovery that the visible characters are due to the co-operation of an indefinitely large number of unseen factors does not increase the probability that Mendelism is likely to be of any practicable help.

The answer is that there is no practicable method but the old and well-tried one of experiment and selection. The hybridist seeks to improve

existing garden plants, and his choice of parents is thus limited at the outset. The problem is to combine visible characters that exist in different individuals or to create new and intermediate ones. The result is not always what was anticipated, and in any case the best of the offspring are selected for further experiment. Now comes in that bewildering amount of reversion that was seen in Mr. Seden's very first experiment in raising a secondary hybrid, which not only showed the unseen factors behind the visible characters, but also led to an attempt to explain them. Hybridists work for visible characters, Mendelians seeks to identify the invisible factors behind them, but both work by definite experiments, and are equally unable to control the results. Hybridists must realise by this time that Mendelism provides no royal road to success.

ORCHIDS FROM ASHTON-ON-MERSEY.

THREE beautiful flowers are sent from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, by Mr. W. Thompson, all of which have received Awards of Merit at Manchester. Odontoglossum crispum Northern Glory (A.M., Feb. 3rd) is a remakably fine thing, with an expanse of four inches from tip to tip of the petals; the segments broad, well crisped, and the ground colour white, copiously blotched with red in a zone about an inch broad. Odontioda Sunset (Odm. loochristiense × Oda. Vuylstekeæ) (A.M., Feb. 17th) is a well-shaped flower, with an expanse of nearly three inches, and copiously blotched with dark crimson on a dark yellow ground, which latter forms a distinct tracery among the blotches, while the margin is dark crimson. The broad lip bears two blotches in front of the crest, and many small ones at the side. The third is Cypripedium Tigris (Mrs. Wm. Mostyn × Earl of Tankerville), a handsome flower, with large purple-brown blotches on the dorsal sepal, and some smaller ones on the lower half of the petals, the upper half of the lip being well-suffused with purple-brown. This received an A.M. on Feb. 3rd, under the name of C. Marphil, a similar award going to C. Ruby-King (see p. 86), which has now been altered to C. Moira (Priam × bingleyense).

Mr. Thompson remarks that these two plants were bought in flower unnamed, with the record of parentage given, but when exhibited at Manchester on Jan. 25th the parentage was disputed. They were therefore noted in the report as C. Ruby King (parentage unknown) and C. Marphil (? × Earl of Tankerville). But the article at page 33, and the report of the London meeting convinced them that they were the plants exhibited at the R.H.S. This has been confirmed by the vendor, and the names have been altered to C. Moira and C. Tigris.

CALENDAR OF OPERATIONS FOR MARCH.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

WITH the lengthening days, and the increased amount of light and sun heat, our plants will resume their activity, and growth will become general. The mild weather experienced during the winter has been to the liking of the plants in all departments, and only rarely are they seen in such condition at this particular season as during the present year. This may be partly accounted for by the favourable summer of last year, together with an exceptional winter, although probably additional light would have been still more beneficial. It is a consolation to have some aids to cultivation to record during these strenuous times, for undoubtedly many of us will feel the inconvenience of the shortage of labour, and material, and other things owing to the war.

TEMPERATURES.—These might be slightly raised all round, and with the increased heat additional atmospheric moisture must be given. The proper regulation of the great factors of heat and moisture in the different houses are of the greatest importance, as no plant can thrive under improper atmospheric conditions. A humid atmosphere may now be maintained in all the houses, but it is obvious that less moisture is required on a dull wet day than on a bright one. A fair amount of artificial heat will still be required during the night, but in the day time only sufficient is necessary to maintain the temperatures.

WATERING.—Although growth with most plants will have commenced, the application of water to the roots will still require some consideration, as much damage may be done either by overwatering or by keeping the compost too dry.

VENTILATION during the present month, owing to the changeable nature of our climate, is often a difficult problem, especially in those districts where cold east winds are prevalent. The plants must, nevertheless, receive fresh air on all favourable occasions, and the cultivator must use some ingenuity in supplying it. Although fresh air is life to plants, if injudiciously used it may also become a source of danger. Draughts must be most carefully avoided.

SHADING will now become general, and after the dull wet weather of the past winter it will be wise to inure the plants gradually to the sun. This, like everything else appertaining to plant culture, can easily be overdone.

PHAIUS, Calanthes, and Peristeria elata will, as they commence to grow, require attention as regards new rooting material. These, owing to the nature of the compost, are best repotted annually. A suitable compost is made up of one half peat or osmunda fibre, the other half good fibrous

loam, with all the fine particles taken out, mixed with some sphagnum moss and dried cow manure. The pots must be well drained, as they require an abundant supply of water when in full growth, and owing to their soft fleshy roots it is not advisable to pot them too firmly. Care is necessary in the application of water until the plants have made considerable roots in the new material. They require plenty of heat, but will not stand the strong rays of the sun, and therefore must have protection.

THUNIAS require similar treatment, except as regards shading, for they require all the light and heat possible. It is needless to state that in both groups the bulbs and leaves should be thoroughly cleaned before being potted, and it is also a wise precaution to warm the compost before repotting plants that inhabit the warmer houses.

PLEIONES.—P. humilis and any of the late-blooming section which have passed the flowering stage and commenced to grow, may now receive attention as regards repotting, should this be necessary. They are best grown in shallow pans, suspended from the roof. A similar compost to that used for Cypripediums will answer their requirements. P. maculata, lagenaria, and Wallichiana are now growing vigorously, and may receive water whenever they become dry. If grown in a dry position these plants are liable to attacks of red spider, and a slight spraying under their leaves on bright days will be beneficial.

CATTLEYAS AND ALLIES.—There are now so many lovely plants which come under this head that one could fill the space at disposal every month with particulars dealing with these most gorgeous plants. C. labiata, Gaskelliana, and the innumerable hybrids which flowered during the winter months, may be repotted as soon as new roots are observed to be pushing from the rhizome. C. Percivaliana and Trianæ, shortly after they pass out of flower, will commence to push new roots, and should have attention. Many growers keep these plants in the same material for several seasons, but to my mind this is an error, as I find my plants are ready for new material each year, and when potted at that season when about to push new roots receive no check. Many amateur growers, I am convinced, kill these plants simply from the reason that they are afraid they may hurt them by repotting, but if they would pot them at their respective seasons, and treat as advised, Cattleyas would be as simple to grow as anything else.

CYPRIPEDIUMS of the green-leaved section, as they pass out of flower, should be treated as advised in the January number. The secret of large fine flowers and robust plants of this large family is to keep their roots in sweet and healthy material. I have previously remarked that loam in the potting material can easily be used in excess.

DENDROBIUMS of the nobile section will now be making a great show,

and as the Cypripediums pass out of bloom will produce a succession of flowers, which make Orchid collections interesting for several weeks. Bring them on slowly, as the flowers are finer and the new growths stronger than when unduly forced into flower. Plants of D. Phalænopsis and its varieties, with others of the same section, are developing new growths, and any specimens that require fresh rooting material should receive attention in this respect as soon as new roots appear at the base of the plants. This section delights in an abundance of heat and light, therefore should be placed in the lightest position possible, and in the warmest house. They are best grown in shallow pans, and a suitable compost is made up of three parts Aɪ or Osmunda fibre, and one part sphagnum moss.

Oncidiums of the macranthum section, if not pushing up flower spikes, may be repotted, should the compost be in a decomposed condition. Although these soft-rooted species soon lose their roots in a close, hard compost, a loose, spongy material must be avoided. A similar compost to that used for Odontoglossums will answer their requirements. There are other Oncidiums of a different nature altogether, being quite small growers, but which produce beautiful panicles of bloom. I refer to O. pulchellum, O. cheirophorum and others, which produced their flowers during the winter months. These small plants are best grown suspended, and they may now be afforded fresh potting material, should they be in need of it. They must be watered with extreme care, and succeed in the Cool house. O. tigrinum, now at rest in the Cool house, should be kept on the dry side, but the pseudobulbs must not be allowed to shrivel. The exhaustion of plants by shrivelling whilst at rest is very detrimental, and in many cases they rarely recover.

Odontoglossums.—The present is a suitable time to afford increased root-room to cool Orchids which are not flowering, but Odontoglossums should not be disturbed unless it is absolutely necessary. Odontoglossums are now so numerous, and the parentage so varied, that it is a most difficult problem to state the exact season for repotting. The autumn months, however, are much the best in which to undertake this operation, though there are always some plants in bloom, and as those in that state cannot possibly be done then, they will require it at this season. Plants which are potted now must be watered with care until they are well rooted, then they may have water whenever they become dry. Odontoglossums that are pushing up their flower spikes should be looked over every day for slugs, and the spikes when long enough neatly looped up to small stakes.

Phalænopsis that are commencing to make new roots may have attention as regards new rooting material should they be in need of it. Although not grown to the extent they once were, a house of healthy established plants in bloom forms a delightful spectacle, and will repay the

pains necessary to arrive at that end. They are best grown in baskets suspended from the roof of a Warm house, but not placed too near the roof, as their fleshy leaves are liable to suffer from extremes of heat and cold. They resent decomposed materials, and a clean compost as used for Cattleyas will answer their requirements. They require a humid atmosphere at all seasons, but less will suffice during the winter season.

SPATHOGLOTTIS.—As the different species, with their hybrids, commence to grow they should be repotted in a similar compost to that used for Cypripediums. They all require a position in the Warm house, and require ample head room, as when strong their leaves attain considerable length. The different species of Microstylis, and plants of similar character, succeed under such treatment.

MILTONIA VEXILLARIA may now be placed in cooler and more airy quarters, and should be kept for some little time on the dry side until they get accustomed to their new quarters. When grown under these cool conditions the plants acquire strength and substance in their leaves and bulbs, which make them most vigorous.

GENERAL REMARKS.—We may now look for more genial conditions, and growth will come on apace, so that every effort should be made to keep abreast of the work, for delay in carrying out the necessary operations is not conducive to success. The different pests that trouble us must be fought with all the energy at our disposal, as neglect in this matter may do much harm.

CYPRIPEDIUMS FROM HESSLE.

SEVERAL more very finely-grown Cypripediums are sent from the collection of W. P. Burkinshaw, Esq., Hessle, E. Yorks, by Mr. J. T. Barker, to illustrate their value as decorative winter-blooming plants. There are two distinct and fine seedlings from C. insigne Harefield Hall var. × Pollettianum, one having the dorsal sepal $2\frac{3}{4}$ inches across, and the other rather smaller, and almost covered with large brown blotches except at the white margin. C. Curtmanii × Euryades has smaller, very dark blotches on the green centre of the dorsal sepal, the margin being white, while the broad petals are also well spotted. C. chrysotoxum var. Victor is represented by a twin-flowered spike, the dorsal sepal having a purple band, some reticulated veining on each side, and a broad white margin, the rest of the flower recalling C. villosum. C. Stevensii is a fine flower of the Leeanum type, with a broad, dark purple band on the dorsal sepal. C. Hercules is a massive flower of good colour, in which the influence of C. hirsutissimum and C. villosum can be traced. Lastly may be mentioned

the three light varieties of C. aureum known as Hyeanum, virginale and Surprise. The earlier flowers are noted at page 39, and these form a very useful succession. A flower of the beautiful Brassocattleya Veitchii var. Queen Alexandra is also enclosed. This is one of those raised by Messrs. Charlesworth, it is believed the third of the batch to flower.

CYPRIPEDIUMS FROM ACCRINGTON.

ANOTHER interesting lot of seedlings has been received from the Rev. J. Crombleholme, Clayton-le-Moors, Accrington. C. Ethel var. argenteum (Stonei × Chamberlainianum) is represented by a fine, four-flowered raceme, the flowers most like the former in shape and colour, but showing the influence of the latter in the lip and staminode. The petals are elongated, drooping, and regularly blotched with purple-brown, while there are a few lines and dots on the dorsal sepal, C. Lord-Wolmer var. Zealandia (Leeanum giganteum × Euryades Sander's var.) is a very fine thing, with broad horizontal petals, and a concave, white dorsal sepal dotted with purple. C. Duchess var. Dreda (aureum Cyrus × insigne Harefield Hall var.) is most like the latter, but with smaller spots. C. apiculatum atratum (Boxallii atratum × barbatum nigrum) has an almost blackish purple dorsal sepal, somewhat feathered on the white margin.

The rest are additional forms of those noted at page 39, and are interesting as showing the variation of seedlings from the same batch. A flower of C. Troilus from a small seedling almost indicates a new type, and should be taken care of. There are two lateral sepals occupying the angle between the horizontal petals and the lip, all the sepals being heavily blotched with dark purple brown, while the petals have only light markings. C. Robsonii × Euryades Sander's var. has the lower two-thirds of the dorsal sepal almost solid blackish purple with a white apex and margin, and the petals and lip strongly suffused with purple-brown. C. Evelyn-Ames × insigne Harefield Hall var. is well blotched with purple-brown on the dorsal sepal and petals. Three seedlings of C. aureum virginale × Spicerianum are all most like the latter in colour and shape except that the petals are broader. Lastly, there are five more seedlings of C. Infanta (Robsonii × Lathamianum), all from the same pod. The neat compact shape and the substance of the flowers are attractive qualities, and no two are alike. The one we like best has a decided yellow tint in the spreading petals and a few very dark blotches on the yellowish base of the dorsal sepal, the rest being white. Another has brown petals and many purple spots on the dorsal sepal. The other three are more of the Robsonii type. It is a very interesting series.

DENDROBIUM TORTILE AND D. HILDEBRANDII.

THE two Dendrobiums figured on this and the succeeding page are characterised by having curiously twisted sepals and petals, from which the former received its name. D. tortile is a native of Burma, and is found both in the Mergui district and in the Arracan Hills, being originally discovered in the former by Thomas Lobb, when collecting for Messrs.

Fig. 22. DENDROBIUM TORTILE.

James Veitch & Sons, from whose materials it was described by Lindley (*Gard. Chron.*, 1847, p. 797, with fig.). It has much of the general habit of D. nobile, but has shorter and stouter pseudobulbs. The sepals and petals are pale rosy lilac in colour, and the lip pale sulphur yellow, with a few purple streaks at the base. Its floriferous character is seen in the annexed figure, which represents a fine specimen grown in the collection of J. W. Arkle, Esq., West Derby, Liverpool. The species does not appear to have been used much for hybridising, the only hybrid from it that we remember being D. Niobe, which was raised by Messrs. James Veitch & Sons, D. nobile being the second parent. It flowered for the first time in April, 1893, when it received an Award of Merit from the R.H.S.

D. Hildebrandii (Rolfe, in *Kew. Bull.*, 1894. p. 198) is a nearly allied species, which was discovered in the Shan States by H. H. Hildebrand, Esq., who sent plants to the establishment of Messrs. Hugh Low & Co., of Clapton, where they flowered in the spring of 1894. It has much the habit of D. nobile, but the flowers are light yellow, and the twisted sepals and petals indicate a marked affinity with D. tortile. It is a very free-growing

Fig. 23. Dendrobium Hildebrandii.

and floriferous plant, and as many as 1,500 flowers have been counted on a single clump in a wild state. In the variety oculatum there are a pair of maroon blotches on the yellow disc of the lip. It has yielded several interesting hybrids. The first was D. Elwesii, of which D. aureum was the second parent, this flowering in 1900. D. Ellisii, from D. nobile, came a year later, afterwards being exhibited under the name of D. Wiganianum. Then came D. Haywoodiæ, in 1902, of which D. Wardianum was the second parent; D. Rallianum, from D. Ainsworthii, in 1905; and D. Boundii, from D. Findlayanum, two years later.

ORCHIDS AT BRACKENHURST, PEMBURY.

WE have long been familiar with the fine exhibits that are staged from time to time at Westminster from the collection of J. Gurney Fowler, Esq., Treasurer of the Royal Horticultural Society, and Chairman of the Orchid Committee, and we welcomed an invitation received the other day to come and see the collection itself. About two years ago Mr. Gurney Fowler moved from South Woodford, Essex, to Pembury, near Tonbridge, Kent, where he has erected a fine new range of Orchid houses, with the latest improvements, and as the climatic conditions of the district are well suited to Orchid culture, an increased measure of success may be anticipated. The situation is an open one, at an elevation of over 400 feet above sea level, with a southern aspect, and, being entirely outside the fog area, the light is good during the winter months, which is an invaluable asset in Orchid culture.

The range consists of six houses, about 60 feet along, in some cases with partitions, extending from a half-span corridor, over 30 yards long, and running east and west. Four of the houses are 12 feet wide, and the other two 21 feet. On the north side of the corridor is an additional house, devoted to Cymbidiums, Odontoglossums, and other Cool Orchids. Here also is the Potting Shed, the Stokehole, and an office, where the records of hybridising operations and a fine collection of Orchid paintings are kept. The range is heated by a pair of Robin Hood boilers, either of which can be disconnected as necessary. There is also the convenience of electric light, and the whole of the arrangements have been well thought out. In this Mr. Gurney Fowler has had the assistance of Mr. T. Armstrong, of the firm of Armstrong & Brown, whose long experience as a successful cultivator and hybridist is a guarantee that essential points have not been overlooked. The houses are fitted with open lattice-work stages, and canvas blinds on rollers are used for shading. Top and bottom ventilators are fitted, the latter consisting of wooden shutters fixed in the side walls.

The collection generally is in excellent condition, and besides many interesting things in bloom, a series of choice varieties and examples of good culture were pointed out, of which we can only mention a few, for the contents of the corridor alone would exhaust the space at our disposal. This corridor, which has a southern aspect, is largely devoted to Dendrobiums, which were about at their best at the time of our visit, the back wall being covered with about four hundred plants in bloom, and making a magnificent display, the combination of rose-purple, white, and yellow being particularly effective.

The plants are both grown and rested here, being partly suspended from the roof and partly from galvanised wire staples fixed to the wall, and their vigour and floriferousness afford evidence that the cultural conditions are suitable. The point about allowing a natural rest was emphasised by Mr. Gurney Fowler, because it is sometimes held that a long, cool rest is conducive to floriferousness. He finds, however, that nothing is gained by this, while some kinds suffer considerably by such severe resting. And there is further evidence that the cultural conditions are sound, for thriving plants of D. Wardianum were pointed out that have been in the collection for twenty years. In fact, under proper treatment, there is no reason why the plants should deteriorate.

The collection is a representative one, and contains many of the principal species and hybrids, among the latter being a series of fine forms raised in the collection. D. nobile was represented by a number of beautiful varieties, including the charming albino, virginale, Amesiæ, with white sepals and petals and an intense blackish maroon disc, the large and richly-coloured nobilius, elegans, characterised by its broad segments and very round flowers, the freak variety Cooksonianum, with lip-like blotches on the petals, Ballianum, blush white with a pale pink disc, and violaceum, a charming light form, with a light rose-coloured disc, quite recalling the variety murrhinianum. This was obtained from D. nobile Amesiæ × n. virginale, and quite a number of plants were in bloom, showing much variation in colour, the majority being light, but a few having reverted to rosy purple forms with the usual maroon disc. All are said to have been obtained from a single capsule, and it will be noted that they are not hybrids, for both the parents are varieties of D. nobile.

Of other species in bloom we noted two forms of D. aureum, one of them constantly producing pseudobulbs of only a few inches high, D. Findlayanum, D. Wardianum, D. signatum, D. fimbriatum without a dark blotch on the lip, a particularly well-fringed form of D. Brymerianum, and others.

The hybrids formed a particularly fine show, but we can only mention a few of them. There were some good forms of D. Ainsworthii (nobile × aureum), among which we noted Thompson's var., with broad rose purple ground colour, and a very dark disc, and the fine Woodhatch var., white with a broad well feathered maroon disc. D. Ainsworthii recrossed with D. nobile has given a very varied series of hybrids, which rank as varieties of the originale D. Rubens. Here was the large and richly-coloured D. Rubens grandiflorum, with the varieties Apollo album, Armstrongiæ (A. Robinsonianum × n. Amesiæ), white, with an intense maroon disc, and other beautiful forms. Another stage is reached in D. Perfection (D. Rubens Apollo × nobile), an exceptionally fine rose purple flower, with a

white ring separating the maroon disc from the rose purple margin and apex.

Other beautiful hybrids noted were D. Cybele and the fine var. elegans, having quite the shape of D. nobile elegans; the very richly-coloured D. Niobe (tortile × nobile nobilius); D. Juno, D. melanodiscus, D. Wiganiæ, and a form of it with a rosy suffusion; D. chessingtonense, D. Rolfeæ, which is regarded as a variety of D. nobile with the disc of the lip reduced to a few purple lines, though the evidence is not conclusive; D. George Woodhams (Sibyl ×?), with the apex of the segments rose purple and some light purple suffusion and veining on the disc, somewhat recalling D. Rolfeæ; D. Buttercup (Rolfeæ × signatum), a charming light yellow flower slightly flushed with rose at the tips and a few rosy streaks at the base of the yellow disc; two very different forms of D. Brunette (chessingtonense × nobile), one like a small dark D. Rubens, the other pale yellow, flushed with rose at the apex of the segments, and some rosy markings on the yellow disc; D. Melpomene (Ainsworthii × signatum), in both pale and deep yellow forms, with small maroon blotches on the disc; D. Alice Bound × signatum, a pretty light buff form with a small maroon blotch on the disc, and D. Butterfly (Ainsworthii × chessingtonense), a very variable and beautiful hybrid of which four forms may be selected for note. One has clear yellow flowers with a sharply-defined ruby-maroon disc; a second is pink with a flush of yellow and a larger half-feathered disc; a third is white with rosy tips, and a feathered maroon disc; and the last yellow, strongly flushed with pink on the sepals and apex of the petals, and a large, ruby-maroon, strongly-feathered disc, leaving only a yellow margin round the lip—the two latter very charming forms.

The list could be much prolonged, did space permit, and a good many others were not then in bloom. A plant of D. nobile nobilius carried a fine capsule of the preceding year, and was again flowering. On the back wall of the corridor we noticed some healthy plants of Cattleya citrina, the position apparently suiting them, while other Cattleyas suspended from the roof were in thriving condition. There was also a plant of the rare Epidendrum Ellisii in flower. Many interesting things were in bloom in the other houses, but an account of them must be deferred.

A DENDROBIUM NOBILE FREAK.—A well-bloomed plant of D. nobile at Kew has produced a two-flowered inflorescense, in which one flower was typical and the other a freak, indistinguishable from D. n. Cooksonianum, which latter has been recognised as a permanent freak from the outset. Shortly afterwards a solitary flower appeared on the same plant, exactly like an exceptionally large flower of this freak variety. It recalls the case figured at page 137 of our twenty-second volume, where a typical raceme and a Cooksonianum-like freak, appeared on the same stem.—R.A.R.

NOTES ON THE ECOLOGY OF ORCHIDS.

By J. L. HERMESSEN, F.R.G.S.

ECOLOGY has been defined as the science treating of the reciprocal relations of organisms and the external world. In less technical language, it is the science which "teaches us how plants or plant-communities adjust their forms and modes of behaviour to actually operating factors, such as the amounts of available water, heat, light, nutriment, and so forth." (Warming, Œcology of Plants, p. 2.) The ecology of Orchids is one of the most interesting aspects of the study of these intensely fascinating plants, since it furnishes the data primarily necessary to an intelligent understanding of their cultural requirements, based upon the physical conditions of their natural environment. The ecologic habit is often much more characteristically marked in some species than in others; and it is the purpose of the present notes to deal briefly with a few of the former as representative types amongst the Orchids of Southern Mexico.

Taking, as a first example, Oncidium Cebolleta, the peculiar structure of this Orchid, in the thick, fleshy, terete leaves, the nearly complete suppression of the pseudobulbs, and the smallness and scantiness of its thread-like roots, is at once significant of its adaptation to prolonged heat and drought. It is thus commonly found where such climatic conditions obtain, growing often, in forest, on the slender hold of lianas, or, in semi-open country subject to the influence of strong, dry, hot winds, on hard, thin-barked, thorny trees of a dwarf or scrubby nature. Its range in elevation is from sea level to one or two thousand feet above. In this same class, by reason of their ebulbous form and thick, fleshy leaves, may be included O. carthaginiense, O. luridum, and O. microchilum, although these frequently occur in more humid parts.

Another Orchid very similar in habit is Brassavola nodosa, which also physiologically resembles the first-mentioned Oncidium, but has ampler roots, sometimes in a knotted bunch. B. nodosa rarely grows on high trees, which, indeed, seldom exist in extremely dry zones, lofty forest being generally incidental to the botanical evolution of very wet regions in the tropics.

An Orchid which is one of the most distinctive, in respect to its ecology, of any found in Mexico is Brassavola Digbyana. This plant bears a very large and very beautiful flower, having greenish-yellow sepals, tinged on the outer side with rose-pink, yellowish-white petals of crystalline texture, similarly tinged and faintly veined, and elaborate silvery-white labellum, with fine gradations of pale green in the throat and with delicately frilled edges—

which last constitute its superlative charm. The flower emits at night a powerful and pleasing scent, but is quite odourless during the daytime. The foliage is thick and heavy, while the rootstock consists of tough, fleshy rhizomes, from which small trendrils emerge and attach the plant to its elected host. B. Digbyana flourishes, in Mexico, solely in the logwood swamps of Campeche, affecting mostly the curious ribbed trunk and lower branches of the logwood tree (Hæmatoxylum campechianum). These swamps abound in miscellaneous epiphytal growth, and although tangled lianas, thorny shrubs, &c., sometimes render them impenetrable, the "floor," more often than not, is relatively clean, and would be easy to get over but for its being invariably broken up into numberless islets of a heavy tenacious clay about the bases of the trees, the result of the denuding waters in the wet season. The annual precipitation is between 60 and 70 inches, distributed over the six months from May to October. During the rest of the year rain rarely descends, except in occasional showers.

Thus Brassavola Digbyana is capable of withstanding protracted atmospheric dryness, its leaf and root system being clearly fitted to the accumulation of the requisite reserve of moisture to carry the plant through such a hiatus without serious loss of vitality. Moreover, it can bear without injury a considerable amount of sunlight when subdued by passage through the superincumbent branches and foliage of the woods. The plant frequently grows in close company with Bromelias, by which it may possibly be protected against dessication. The symbiosis or organic bond between B. Digbyana and the logwood tree, whatever it may be in itself, is undoubtedly important in its effect, proving, according to the writer's experience, that it provides a condition necessary to the constitution of the plant, to wit, a rapid and free run-off for the water of the torrential rain-falls of its native habitat. Moisture retained about its roots inevitably leads to its decline and ultimate decay.

A unique example of ecologic habit in Orchids is presented by Coryanthes sp., which almost always grows in the topmost branches of large and lofty forest trees. Its roots are composed of a globular mass which, in every instance, has been found to be the abode of a colony of large, black, vicious ants. It is supposed that these insects excrete some substance essential to the life of the Orchid, for it is never found without them, and attempts to cultivate the plant, after the eviction of such undesirable tenants, have always failed. Mr. James Rodway, in his work *In the Guiana Forest* (p. 130), makes mention of this Orchid, and describes the same phenomenon in its affinity there.

Orchid ecology is well illustrated again by the genus Stanhopea. Conspicuous amongst the luxurious tropical vegetation of its natural state by its long-stemmed, broad, glossy, dark-green leaves, or, if fortune favour,

by its gorgeous pendant inflorescence—the odour of which is so strong as often to attract the seeker's attention before ever his eye has caught its source—the Stanhopeas are nowhere encountered but on big, rough-barked trees in dense, shady, humid forest. The writer has gathered this Orchid on the Isthmus of Tehuantepec at 300 feet above sea-level; in the State of Vera Cruz between Cordoba and Orizaba at from 2,000 to 5,000 feet; and in the Sierra Madre, on the Pacific Coast, in the State of Chiapas, at 2,000 feet. In these several widely separated localities the surrounding conditions were identical. In the case of the last named, the station was most plainly defined and limited by a *visible* line of demarcation forming the crest of a ridge, on the other side of which was a totally different class of vegetation. On the eastern (and landward) versant the base of this ridge was timbered with pine trees in scattered groups, interspersed in sheltered ravines with small palms—strange juxtaposition of arboreal emblems of cold and heat; higher up the vegetation changed from this predominant gregarious type to true tropical forest whose individuals were laden with long drooping mosses and a variety of epiphytal growth. On the edge of an escarpment, between the lower pine-clad slopes and the transition to the wetter belt, were masses of a dwarf Sobralia, in full flower, growing in the semi-terrestrial habit of many species of this genus amongst the rocks and in the loose stony soil. In the supervening mossy humid forest, exposed to frequent rains, aqueous mists, and prevalent winds from the north-east, was a multitude of Stanhopeas, amidst a becoming setting of Bromelias, Ferns, and large-leaved climbing plants—the whole forming a veritable botanical paradise. A step over the sharp summit of the ridge on to the seaward side disclosed a remarkable contrast in an absolutely distinct type of vegetation, wherein epiphytal growth, in any form whatsoever, was entirely absent.

Liparis macrantha.—This fine Formosan Liparis has now flowered in cultivation, in the collection of H. J. Elwes, Esq., Colesborne, Glos., a plant brought from Formosa by Mr. Elwes proving identical with the one originally described over twenty years ago from dried specimens (Rolfe, in *Ann. Bot.*, ix. p. 156). It is a striking plant, bearing several large wavy leaves, and a scape about eighteen inches high, with very numerous, large vinous purple flowers, over an inch in expanse. The sepals are oblong, somewhat revolute, and the petals narrowly linear, while the broad, obcordate lip is reflexed, and has a central channel, and a strongly denticulate margin, with numerous diverging ridges underneath, corresponding to a set of lateral nerves: the latter extending from a pair of longitudinal nerves, which are isolated from the three central ones. It belongs to the section Molliifoliæ, and is one of the finest species in the genus. A plant has been presented to Kew by Mr. Elwes.—R.A.R.

DENDROCHILUM GLUMACEUM VAR. VALIDUM.

A GOOD plant of this graceful Orchid was exhibited at the R.H.S. meeting held on February 8th, by Mr. H. Dixon, Wandsworth, and and as its identity was uncertain it may be interesting to give a figure. It differs from the original D. glumaceum in its much broader leaves, this being so marked a feature that it was at first cultivated under the name of D. latifolium, in spite of its very different flowers. It was described at p. 115 of

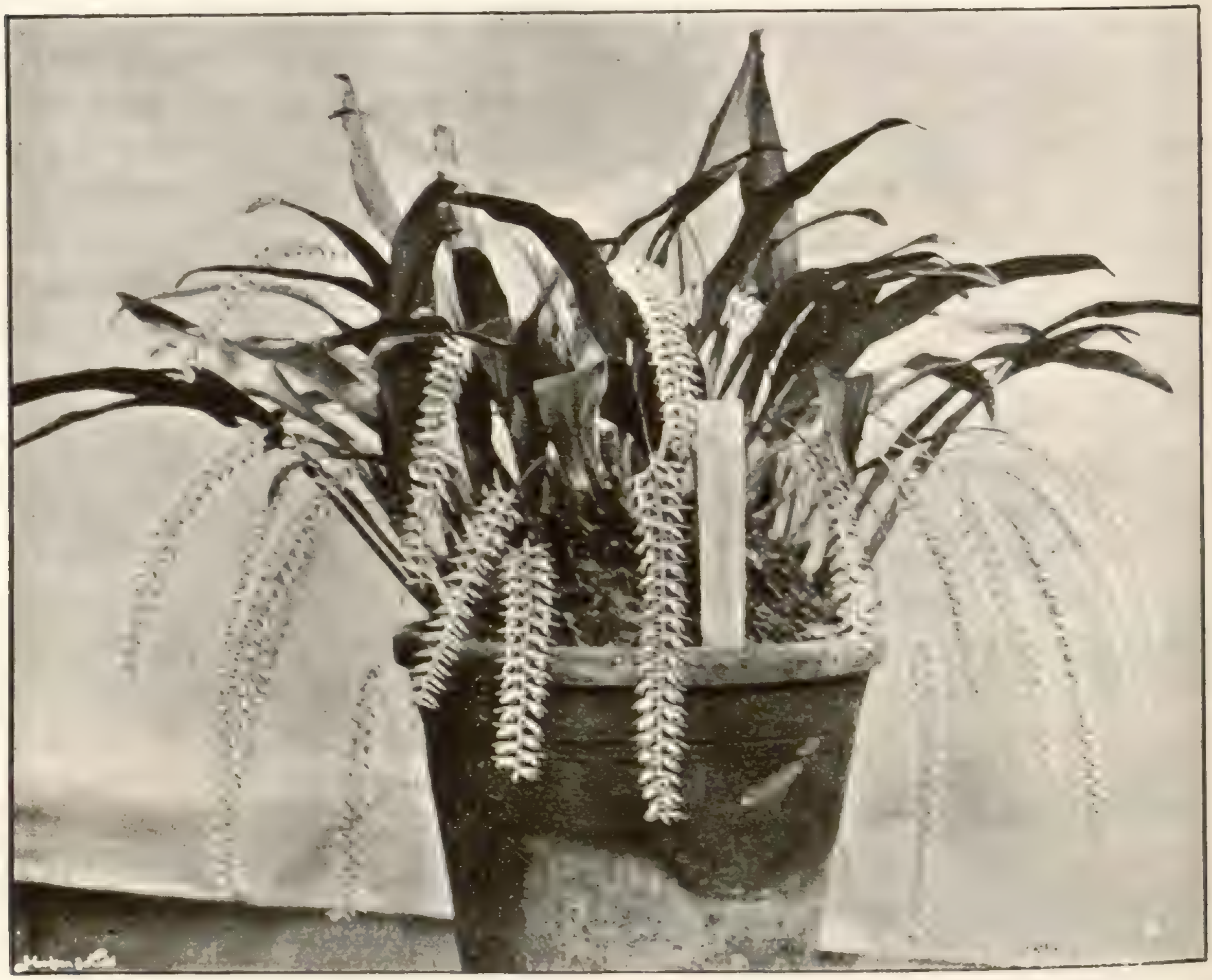

Fig. 24. DENDROCHILUM GLUMACEUM VAR. VALIDUM.

our first volume, from plants which flowered with MM. Peeters, Brussels, at Glasnevin, and with H. J. Hunter, Esq., Edinburgh, but it afterwards came out that it had been cultivated in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, for some eight years, and it is this plant which is here reproduced from a photograph. It is a native of the Philippines, and differs from the type in its more robust habit and much broader leaves, but the inflorescence and flowers are so similar that we cannot regard it as more than a variety. It is a very graceful plant, and of the easiest possible culture in a warm house.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on February 8th, and brought together a fine display of Orchids, in which hybrid Cymbidiums were particularly well represented. The awards consisted of eight Medals, three Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., R. A. Rolfe, F. J. Hanbury, R. G. Thwaites, Pantia Ralli, E. R. Ashton, T. Armstrong, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, C. H. Curtis, A. Dye, W. H. White, S. W. Flory, Gurney Wilson, R. Brooman White, Clive Cookson, and W. Bolton.

LIST OF ORCHID AWARDS, 1859-1915.

The Chairman, J. Gurney Fowler, Esq., presented a copy of the list of Orchid awards from 1859 to 1915, recording the plants certificated, the parentage of hybrids, exhibitor, and date. It has grown considerably since the last list was issued, and now consists of 81 pages, interleaved for additions. He remarked that the list was obtainable at the office of the R.H.S. On the proposition of Sir Jeremiah Colman, Bart., a Vote of Thanks was passed to the Chairman for the vast amount of work he had undertaken in this complete and useful publication.

Elizabeth, Lady Lawrence, Burford (Orchid grower Mr. Swinden) sent a fine spike of the handsome Eulophiella Peetersiana, with twelve rosy mauve flowers and numerous buds.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including Cattleya Clotho Miss Louisa Fowler, a fine form with rosy lilac flowers and the front of the lip claret-purple, C. Trianæ alba, Læliocattleya Myra and Gwennie, two attractive yellow hybrids, Lælia flava, good examples of Miltonia St.-Andre, two fine specimens of Masdevallia Schrœderiana, Dendrobium nobile virginale, several fine Odontiodas and Odontoglossums, Cypripedium Fairrieanum × Mrs. William Mostyn, a richly-coloured hybrid, C. Thalia, and various others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a group of finely-grown specimens, including the rare Warrea tricolor, two fine Odontonia Langowoyi, O. Lairesseæ with a fine panicle of flowers, fine examples of Odontioda Joan, Madeline and Lambeauiana, the latter with two panicles of some three feet high, Angræcum sesquipedale, Oncidioda Cooksoniæ, Odontoglossum Thwaitesii (Rossii × Harryanum), a beautiful

O. crispum xanthotes, O. illustrissimum with thirteen richly-coloured flowers, and numerous others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group, a prominent feature of which was a fine specimen of Aërides Vandarum with nine spikes, with numerous excellent Cypripediums, Cymbidium Gottianum and Butterfly, Angræcum superbum, a fine Oncidium divaricatum, Vanda Amesiana, Miltonia St.-Andre, Dendrobiums, Calanthes, &c. (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a very fine group, the prominent feature being a fine series of of Cymbidium Alexanderi (insigne × Veitchii) showing much variation, and including the charming varieties roseum and aureum. There were also some excellent Odontoglossum crispum and others, the brilliant Odontioda Latona and Diana, Cattleya Empress-Frederick, Læliocattleya Beatrice (C. Schrœderæ × Lc. callistoglossa), the brilliant Sophrocatlælia Marathon and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including many good Cypripediums, Læliocattleyas, and Odontoglossums, with forms of Cattleya Trianæ, Lælia Gouldiana, the fine natural hybrid Cymbidium Cooperi and others, a well-flowered Pleurothallis Roezlii, the rare Bulbophyllum Watsonianum, Eria elongata, Gomeza planifolia, Miltonia Warscewiczii, Brassocattleya Oberon (Bc. Veitchii × C. Schrœderæ), and other interesting things (Silver Banksian Medal).

Mr. Harry Dixon, Wandsworth Common, staged a pretty little group, including Sophrocattleya Atreus, Dendrochilum glumaceum validum, Lycaste Skinneri alba, Cymbidium Alexanderi and grandiflorum, Cypripedium Tautzianum, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including Odontoglossum percultum and armainvillierense xanthotes, Cattleya Trianæ alba, Brassocattleya Nestor, Cypripedium Minos Youngii, C. Golden-Eagle (Beryl × Leeanum), C. Thompsonii (Calypso × villosum) and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including Cattleya Percivaliana alba and Little Gem, fine specimens of Masdevallia Schrœderiana and triangularis, the rare Sarcochilus Fitzgeraldii, brilliant examples of Sophrocattleya Thwaitesii and Saxa, Læliocattleya Pizarro, Saccolabium bellinum with two fine spikes, Cypripedium Aisne (Mrs. William Mostyn × Leeanum), and others (Silver Banksian Medal).

Messrs. Flory & Black, Slough, staged a small group, including Odontoglossum eximillus (eximium × illustrissimum), the richly-coloured O. Fowlerianum (cirrhosum × Rossii), a promising seedling from O. Pescatorei × eximium, Cattleya Octave-Doin, Cypripedium Minos

Youngii, C. Pliny (Leeanum Clinkaberryanum × Victor Hugo), and others.

Mr. C. F. Waters, Balcombe, staged a small group, including the pretty albino Cypripedium Holdenii, C. Thalia, forms of Lycaste Skinneri, and three good Odontoglossum crispum.

AWARDS OF MERIT.

CYMBIDIUM ALEXANDERI AUREUM (insigne × Veitchii).—A very distinct and beautiful variety, having light canary yellow ground, with slight purple lines on the centre of the petals, and bright red markings on the lip. Exhibited by Messrs. J. and A. McBean.

LÆLIOCATTLEYA BUENOS-AYRES (Lc. bletchleyensis × C. Enid).—A beautiful hybrid most like the Cattleya parent in shape, and having broad, light rose sepals and petals, the disc of the lip rose, with darker lines, and the front lobe purple with a light margin.—Exhibited by Dr. Miguel Lacrosse, Bryndir, Roehampton Lane (gr. Mr. Cresswell).

ODONTOGLOSSUM AMABILE MCBEAN'S VAR. (crispum × spectabile).—An exceptionally fine hybrid and of excellent shape, having light yellow sepals and petals, tinged with rose at the tip, blotched with red-brown, and a white lip with dark blotches in front of the yellow crest.

CULTURAL COMMENDATION.

LYCASTE BALLIÆ.—To Mr. Farnes, Orchid grower to Pantia Ralli, Esq., Ashtead Park, Surrey, for a finely-grown specimen bearing twenty-six flowers and buds.

On February 22nd there was again a fine display, and the awards consisted of six Medals and two Awards of Merit. The afternoon lecture was given by Mr. Gurney Wilson on "The Essential Points of Orchid Cultivation."

Orchid Committee present:—Sir Harry J. Veitch (in the chair), J. O'Brien (hon. sec.), Sir J. Colman, Bart., R. B. White, G. Wilson, W. Bolton, C. Cookson, J. W. Potter, S. W. Flory, W. H. White, C. H. Curtis, A. Dye, H. G. Alexander, J. E. Shill, J. Cypher, J. Charlesworth, W. Cobb, F. M. Ogilvie, T. Armstrong, F. J. Hanbury, E. R. Ashton, P. Ralli, R. G. Thwaites, R. A. Rolfe, S. Low, and C. J. Lucas.

AWARDS OF MERIT.

LÆLIOCATTLEYA ERZERUM (Lc. Mrs. Temple × C. Trianæ).—A very fine hybrid, recalling an improved C. Trianæ, and having broad, light rose sepals and petals, and a rose-purple lip, margined with lilac, and some dark lines on the yellow disc. Exhibited by Messrs. Armstrong & Brown.

ODONTIODA DORA (Odm. Jasper × Oda. Vuylstekeæ).—A very handsome hybrid, having broad, claret-red sepals and petals, with rosy margin and apex, and a broad lip, which is pale lilac in front and claret-red behind, with a deep yellow crest. Exhibited by Messrs. Charlesworth & Co.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a small group of finely-grown botanical species, including Sarcochilus Fitzgeraldii, S. Hartmanii, Eria globifera, Cœlogyne sparsa, Trias picta, and several well-flowered specimen Masdevallias.

F. M. Ogilvie, Esq., Oxford (gr. Mr. W. Balmforth), sent beautiful plants of Lycaste Skinneri alba, the rare L.S. armeniaca, and Cypripedium Boltonii.

W. Waters Butler, Esq., Edgbaston (gr. Mr. Jones), sent Odontoglossum crispum Anzac, a fine unblotched form, bearing a spike of 20 flowers.

Baron Bruno Schröder, Englefield Green (gr. Mr. Shill), sent a fine spike of Cymbidium Pauwelsii The Dell var., bearing 24 flowers.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, in which Odontioda Latona, Joan, and Royal-Gem were particularly varied and good. Odontoglossums, Cattleyas, and Læliocattleyas were also represented by numerous fine examples (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a brilliant group, including some well-flowered Dendrobiums and Cypripediums, Cymbidium Gottianum, Masdevallia Courtauldiana, bockingensis, and others (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a very fine group, in which varieties of Cymbidium Alexanderi were prominent, one called Distinction being remarkable for a suffusion of rose and the absence of spots from the lip. Læliocattleya Jessamine (C. chocoensis alba × Lc. Oriens), a pleasing yellow, Lc. Monica (callistoglossa × Myra), Lc. Beatrice, Cattleya Cowaniæ (Mossiæ Wageneri × intertexta Juliettæ), a beautiful white, Odontiodas and Odontoglossums, were also good (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group of hybrids, including some fine Odontoglossum, Odontiodas, and Dendrobiums, Cypripedium Holdenii, Miltonia Bleuana, &c. (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a good group, including Phalænopsis Schilleriana, the rare Odontoglossum sceptrum aureum, beautiful examples of Cattleya Seligeræ, Læliocattleya Myrrha, and other showy things (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including Brassocattleya Everest (Lc. Canhamiana × Bc. Lemaniæ), Cymbidiums, Phalænopsis Stuartiana, Renanthera Imschootiana, and other showy things, with a few interesting botanical Orchids (Silver Banksian Medal).

Messrs. Flory and Black, Slough, sent Odontoglossum Clotilde (Clytie × eximium), a richly-coloured hybrid, Cattleya Blackii and Enid-Sophro, cattleya warnhamensis, Odontioda Joan, Cypripedium Minos Youngii, &c.

Messrs. Hassall & Co., Southgate, sent a fine Sophrocattleya Cleopatra, Cattleya Mendelii albescens, C. Trianæ Surprise, and Brassocattleya Menda.

Manchester and North of England Orchid.

At the meeting held at the Coal Exchange, Manchester, on February 3rd the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. J. Cypher, J. Evans, P. Foster, A. R. Handley, A. Hanmer, A. J. Keeling, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine miscellaneous group, in which Odontoglossums and Cypripediums were well represented, with Miltonias, Dendrochilum glumaceum and var. validum, Odontioda Charlesworthii, forms of Cattleya Trianæ, and others.

Large Silver Medals were awarded to A. Hanmer, Esq., Chester (gr. Mr. B. Wilson), and to Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups of winter-blooming Orchids, in both cases Cypripediums being well represented.

Large Silver Medals were awarded to Col. Sir J. Rutherford, Bart., M.P. (gr. Mr. J. Lupton), and Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for fine groups of Cypripediums.

A Silver Medal was awarded to Messrs. Sander & Sons, St. Albans, for a group of choice Orchids.

A Bronze Medal was awarded to Messrs. A. J. Keeling & Sons for a small group of good things.

Interesting exhibits were also sent by O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); John Hartley, Esq., Morley (gr. Mr. W. Coupe); Frank Houghton, Esq., Appleton (gr. Mr. W. Maddock); S. Gratrix, Esq., Whalley Range (gr. Mr. W. W. Field); Mrs. S. Gratrix; The Liverpool Orchid & Nursery Co., Gateacre, and Mr. W. Shackleton, Bradford.

First-class Certificates.

Odontoglossum crispum var. Gloria, a fine flower of good shape and heavily blotched, from R. Ashworth, Esq.

Odontioda Royal-Gem The Knowle var. (armainvillierense × Vuylstekeæ), a round, deep purple flower, with lighter margins, from J. Hartley, Esq.

Awards of Merit.

Cypripedium chrysotoxum Carter Place var. (Lathamianum × villosum), C. Desdemona Worsley's var. (Mrs. Carey Batten × Alcibiades), C. Caruso (insigne Harefield Hall var. × J. Howes), C. The Pearl (G. F. Moore × aureum virginale), and C. O. C. Evans (parentage unknown), from Tom Worsley, Esq.

Odontioda Rubro-Primus (Oda. Goodsoniæ × Oda. Hippolyta), O. Schrœderi var. ignea, and Odontoglossum Wilckeanum var. Emperor, from R. Ashworth, Esq.

Cypripedium Ruby King, C. Marphil (? × Earl of Tankerville), and Odontoglossum crispum var. Northern Glory, from P. Smith, Esq.

Cattleya Octave-Doin West Point var., from S. Gratrix, Esq.

Odontoglossum amabile The Knowle var. (crispum × crispo-Harryanum), from John Hartley, Esq.

Odontioda Zenobia Houghtonii, from F. Houghton, Esq.

FIRST-CLASS CULTURAL CERTIFICATES.

Mr. J. Lupton (gr. to Col. Sir J. Rutherford, Bart., M.P.) for a fine example of Cypripedium insigne Sanderæ.

Mr. B. Wilson (gr. to A. Hanmer, Esq.) for Cypripedium Thompsonianum.

At the meeting held on February 17th the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. J. C. Cowan, J. Cypher, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, F. K. Sander, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine group, in which Odontoglossums were particularly well represented, with a few good Cattleyas, Læliocattleyas, Sophrocatlælia Marathon var. Rossendale, and others.

Silver Medals were awarded to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for a group of choice Cypripediums, and to Messrs. Cypher & Sons, Cheltenham, and Messrs. Sander & Sons, St. Albans, for good miscellaneous groups.

Special Votes of thanks were awarded to O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), for a fine group containing 70 well-grown Cypripediums, 24 Lycastes, and a number of Miltonias and Odontoglossums, and to G. F. Moore, Esq., Bourton-on-the-Water (gr. Mr. W. H. Page), for a collection of over 40 home-raised Cypripediums, some of the blooms being of exceptional size and quality.

Interesting exhibits were staged by Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson); Messrs. A. J. Keeling & Sons, Bradford; Messrs. J. & A. McBean, Cooksbridge, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum Twyford Gem, Læliocattleya Monica (callistoglossa × Myra), and Cattleya Brenda Ashlands var. (Dusseldorfii alba × Gaskelliana alba), from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Beta and Cattleya Octave-Doin, from R. Ashworth, Esq.

Cypripedium Euryades Carter Place var., and C. Commodore (Alcibiades × memoria Jerninghamiæ), from Tom Worsley, Esq.

Odontioda Madeline Haddon House var., and O. Sunset (Odm. loochristense × Oda. Vulystekeæ), from P. Smith, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers (gr. to O. O. Wrigley, Esq.) for the rare Eulophiella Hamelinii.

N.B.—The following alterations of names of certificated plants are reported: December 16th, 1915, Cypripedium Golden Gem, exhibited by R. Ashworth, Esq., to be C. Golden Fleece; January 6th, 1916, Brassocattleya Doris (C. Mendelii × Bc. The Baron), exhibited by P. Smith Esq., to be Bc. Bianca.

ODONTOGLOSSUMS FROM WARNHAM COURT.

SEVERAL very beautiful Odontoglossums are sent from the collection of C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan). Six forms of O. Fascisolon (Fascinator × Solon) form an excellent illustration of the polymorphism now so familiar among secondary hybrids, and four of them are very charming from the florist's standpoint, being of round, full shape, and very regularly blotched with red-brown on a white ground, with a tinge of rose in the sepals. In two cases the blotches are mostly round and separate; in a third they are more confluent into a few large blotches, forming two zones on the sepals, while in a fourth they cover more than half the surface, being separated by irregular lines of white. The other two have pink sepals with an occasional spot, nearly white unspotted petals, and a few spots on the lip, and forms not very dissimilar could be picked out of imported O. crispum, though the round compact shape and less toothed column wings show the influence of O. Pescatorei and O. Hunnewellianum in their ancestry. O. Fascination (Fascinator × Ossulstonii) is a gem, the flower having an expanse of three inches, and the sepals and petals are broad, blush-pink, and the red-brown markings arranged in a broad complete zone about the middle. Mr. Lucas has a good white, supposed to be from this parentage, which almost resembles a white crispum of good shape, but the rounder segments and less toothed column wings show the influence of O. Pescatorei. O. Eva (cirrhosum × polyxanthum) is very charming, recalling the former in shape, but with broader blotches on the sepals, and more numerous smaller ones on the petals. O. Fairlawn (Edwardii × Wilckeanum) has blackish purple segments, with a lilac margin, and a similar apex to the lip, the base being yellow with some brown markings. They form a very interesting and beautiful series.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during March, on the 7th and 28th (not 21st), when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 2nd, 16th, and 30th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

The Société Nationale d'Horticulture de France has decided to hold a general Spring Exhibition, at the Cours la Reine, Paris, from May 31st to June 5th. The proceeds will be devoted to the aid of horticulturists in the invaded regions, and to societies which are succouring the wounded. It is hoped that the meeting will be a success, and the co-operation of all those who are able to help is invited.

SALE OF THE LATE MR. J. C. HARVEY'S ORCHIDS.—From an advertisement on another page it will be seen that the fine collection of Orchids brought together by the late Mr. J. C. Harvey, La Buena Ventura, Estado de Veracruz, Mexico, is to be disposed of. We have received a classified list, showing that the collection contains 2,000 plants, of 361 named species, belonging to 65 genera, and that both eastern and western Orchids, including such showy genera as Cattleya and Dendrobium, as well as botanical rarities, are very well represented. Mr. Harvey was a keen collector and grower, as may be seen from his article on Orchids of South Mexico, which was a feature of our issue for January, 1915 (pp. 12-18). The sale should afford an excellent opportunity for Orchidists, particularly in the United States, to increase their collections. Particulars may be obtained of Mr. J. L. Hermessen at the address stated.

ANSWERS TO CORRESPONDENTS.

T.W.B:—Odontoglossum Lindleyanum, Rchb. f.

G.H.—Catasetum cristatum, Lindl.

G.H.S.—We have now obtained a flower of the missing plant, and will report.

T.W.—Many thanks. Next month.

IMPORTANT NOTICE.—A temporary reduction in the number of pages in the *Orchid Review* has been necessitated by the Government restrictions on the importation and use of paper, and we rely on the loyalty of our readers at home and abroad to assist us by every means in their power to tide over the difficult period imposed by the War.

The Orchid Review

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ODONTOGLOSSUM VEXATIVUM AND DUVIVIERIANUM

THE receipt of a four-flowered inflorescence of the rare Odontoglossum Duvivierianum var. burfordiense from the collection of J. Gurney Fowler, Esq., Brackenhurst, Pembury, calls attention to a point which has never been cleared up. This variety received an Award of Merit from the R.H.S. in January, 1902, when exhibited by the late Sir Trevor Lawrence, Bart., and in recording its history (*O.R.*, x. p. 59) we suggested that it was a natural hybrid between O. apterum and O. cordatum. The earlier record was O. apterum and O. maculatum, which would make it a form of O. vexativum, Rchb. f. As such, indeed, we had regarded it in our article on Mexican Natural Hybrid Odontoglossums (*O.R.*, ix. pp. 260-264), at which time we only knew O. vexativum from description. Shortly afterwards the fine collection of Orchid drawings made by Mr. John Day was presented to Kew by Mrs. Wolstenholme, and we find that it contains a painting of a flower of the original plant, thus enabling a comparison to be made.

O. VEXATIVUM, Rchb. f., was painted by Mr. Day in August, 1880 (*Day Orch. Draw.*, xxvii. t. 33), when Mr. Day remarked: "This . . . was described by Prof. Reichenbach . . . from flowers received from Lord Londesborough, and he states that he considers it to be a natural hybrid between O. nebulosum and O. maculatum, in which opinion I think no one who is well acquainted with these species can fail to agree. The plant was sold last week at Stevens', when Lord L.'s collection was disposed of. It was in flower, and I very much wished to buy it, but it fell to Mr. B. S. Williams, who was the more spirited bidder. He, however, has kindly obliged me with a flower. . . . I think this is the only plant of the variety which has ever bloomed in this country." This painting completely bears out the suggested parentage, having the shorter broader segments of O. maculatum, with the prominent O. apterum crest. We should much like to know what afterwards became of the plant.

O. DUVIVIERIANUM, L. Lind. & Rod., was based on the earlier O. maculatum var. Duvivierianum, Rchb. f., which appeared in the collection of M. L. de Smet Duvivier, Mont. St. Amand, Ghent, it is said among

numerous specimens of O. maculatum. Reichenbach remarked: "It has lemon-coloured sepals and petals, all spotted with brown, and a whitish lip, spotted with reddish brown, which has a very light hue of sepia. The callus and bracts and shape of the lip prove it to be O. maculatum, not O. cordatum, though the sepals and petals are rather long." There is no mention of hybridity, but in the *Lindenia* description it is called a natural hybrid between O. maculatum and O. nebulosum, which would make it a form of O. vexativum. But the figure shows the unmistakable O. cordatum shape and acuminate segments, with the crest of O. apterum (the latter an earlier name for O. nebulosum), indicating quite clearly that it is a natural hybrid between these two species. Further details may be found in the paper above cited, but it is now quite clear that the two hybrids are distinct. The variety burfordiense is quite similar to O. Duvivierianum in shape, but the segments are more copiously blotched, as in O. cordatum.

It would be interesting to know how far the three species grow intermixed, and whether they ever appear in the same importation, on which point some of our correspondents may be able to furnish information. This much, however, may be said, that all were met with by Ghiestbreght when collecting in South Mexico. We do not know of a natural hybrid between O. maculatum and O. cordatum, but its appearance may be anticipated. We would also suggest that our hybridists might now attempt to raise all three hybrids artificially. R.A.R.

CYMBIDIUM GLEBELANDENSE AND C. ROSEUM.

FURTHER materials of Cymbidium Cooperi and C. roseum have been sent from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol (gr. Mr. Coningsby). Both came out of an importation of C. insigne, and their history has already been given (*O.R.*, xx. p. 131), but there has been a little doubt as to their identity with the artificial hybrids, C. glebelandense and var. J. Davis, raised from the same two species in the collection of J. Gurney Fowler, Esq. The other day, however, we had the good fortune to see several plants of these in flower and bud, and obtained materials for comparison. Making a little allowance for individual variation, we regard C. Cooperi as substantially identical, and propose to call it C. glebelandense var. Cooperi. C. Mavis also, which was exhibited by Messrs. Sander & Sons on March 7th, and of which we have since received a flower, also appears to be a form of the same. It has greenish buff sepals and petals, and a yellowish white, hairy lip, lined with red-purple on the side lobes, and a central streak and zone of confluent blotches inside the margin of the front lobe.

C. roseum, however, is somewhat different. It is decidedly dwarfer, and has a more slender scape, smaller flowers, the segments well veined with rose, and the lip more like C. Schrœderi in shape and markings. Mr. Hamilton Smith raises the question whether there may not be some other species in the district which would give such a hybrid, or whether it may even be a distinct species. We know that C. Ballianum, C. erythrostylum, and C. Sanderæ (C. Parishii var. Sanderæ) also grow in the same district, but none of them crossed with either C. insigne or C. Schrœderi would give such a hybrid, and neither the circumstances of its discovery nor its characters points to the probability of its being a distinct species. But C. glebelandense recrossed with C. Schrœderi might give such a hybrid. The chief difficulty is the rosy colour, but the resemblance to C. Schrœderi is so great, and analogy with other secondary hybrids would lead us to expect both rosy and greenish forms in such a batch. We hope that Mr. Hamilton Smith, if he has not already done so, will raise such a batch of seedlings.

The above case opens a very interesting question, and not for the first time. Whenever allied species that grow intermixed in a wild state intercross, yielding natural hybrids, there is the probability that they have done so for countless generations, and that the hybrids, if fertile, have again crossed with both the parents, thus connecting two distinct species by what has been called a chain of intermediates, and obscuring their natural limits. In this way there may sometimes be generations of secondary hybrids, but without it the well-known polymorphism of secondary hybrids is sufficient to account for the series of perplexing intermediates and reversions met with in such cases. Here is a good opportunity to test the question. R.A.R.

DENDROBIUM WOLLASTONII.

A STRIKING Dendrobium of the section Latourea has just flowered in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle (gr. Mr. C. Wright), of which the inflorescence has been sent to Kew. It is one of the species found during the recent Wollaston Expedition to Dutch New Guinea, and has been described under the name of D. Wollastonii, Ridl. It is most comparable with D. Forbesii, Ridl., but has larger flowers, and the lateral sepals, instead of being smooth at the back, are covered with long white hairs, as in the pedicels of both species, where also are many small purple markings. The flowers are light cream yellow, with radiating carmine veins on the side lobes of the lip, and a darker suffusion of the same colour at the crenulate margin. The sepals are very acuminate, 1½ inches long, and the spathulate petals 1¾ inches long, with a longitudinally folded limb over 1¼ inches broad when opened out, and a

short acuminate apex. The front lobe of the lip is acuminate, and infolded at the sides, and the disc bears a prominent fleshy white crest at the base. It is a striking acquisition. R.A.R.

DENDROBIUM FORBESII.—The appearance in cultivation of a fine new Dendrobium of the section Latourea calls attention to an allied New Guinea species, which was described thirty years ago (Ridl., in *Journ. Bot.*, 1886, p. 323) from dried specimens collected on Mount Korkoko, in the Sogeri Region, by Mr. H. O. Forbes. It was described as a most beautiful plant, very nearly allied to D. macrophyllum, but distinguished by its larger, cream white flowers, cream yellow lip veined with purple, and by the glabrous sepals and petals. The author then remarked: "What appears to be the same plant in fruit was collected in the Island of Jobie, Geelwink Bay, by Mr. Barclay." This, however, which is preserved at South Kensington, proves on comparison to be a fine fruiting specimen of D. macrophyllum. Some fifteen years later a Dendrobium was introduced by Messrs. Sander from New Guinea, through their collector, W. Micholitz, and a plant that flowered in the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, received a First-class Certificate from the R.H.S., and was afterwards described (O'Brien, in *Gard. Chron.*, 1901, i. p. 86), and also figured from a plant that flowered with Sir Trevor Lawrence (*Bot. Mag.*, t. 8141), but it proves to be identical with the original D. Forbesii. The species of this group, of which D. macrophyllum and D. atroviolaceum are among the best known examples in gardens, require Warm house treatment throughout the year. R.A.R.

CYPRIPEDIUM JULIUS.—I am forwarding a flower-spike of a Cypripedium that I have raised here. The parentage is C. Rothschildianum × Lowii. Six plants are in bloom at the present time, each carrying a spike of three or four flowers, on stiff upright stems, the tallest rising to a height of thirty inches. The habit of the plant is very similar to that of C. Rothschildianum, and the variation in form and colour is very slight.—W. C. SWANBOROUGH, The Gardens, Holly Spring, Bracknall, Bucks.

A striking hybrid of the same parentage as C. Julius, which was registered by Messrs. Sander & Sons two years ago (*O.R.*, xxii. p. 190). The dorsal sepal is broadly ovate, light yellow with numerous purple-brown stripes, and the petals, which range from $4\frac{1}{2}$ to $5\frac{1}{4}$ inches long in different flowers of the infloresence, are light yellow spotted with purple-brown below, and red-purple at the twisted apex. The lip is purple-brown, and the staminode oblong, three-toothed at the apex, and very hairy at the sides and apex. It combines well the characters of the two species, inclining rather to C. Lowii in floral character.

ORCHIDS AT BRACKENHURST, PEMBURY.

Concluded from page 76.

AFTER admiring the magnificent display of Dendrobiums, and noting some of the more striking forms, we passed from the Corridor into an Odontoglossum house, filled with choice varieties, some of them showing remarkable vigour, and including a number in flower or spike, while several seed pods told of the experiments in hybridisation that are being carried on. There were also batches of small seedlings in thriving condition. Odontoglossum crispum solum was throwing up a very strong spike, and some plants of O. Thompsonianum showed remarkable vigour. O. armainvillierense Starlight and O. Aquitania were throwing up strong spikes, and it was interesting to see two healthy plants of the unique O. Smithii. Among familiar things in bloom we noted forms of O. excellens, spectabile, and armainvillierense, O. Pescatorei with two fine panicles, and a few good crispums. O. elegans was on the point of expansion. The rare O. Duvivierianum Burford var. was in bloom, and is the subject of a note on page 89. Odontioda was represented by several good things in bloom, and among them three plants of the brilliant O. keighleyensis, one being exceptionally dark in colour. Sophronitis grandiflora was also noted here, including plants bearing seed pods. This house promises a fine display of bloom later on.

In the Cattleya house we found a fine collection of the leading varieties and hybrids in thriving condition, those in bloom including forms of C. Schrœderæ and Trianæ, C. Trianæ J. Gurney Fowler being a fine rosy form with a richly-coloured lip. C. Transylvania is a fine hybrid from C. Enid and Trianæ, and we noted also in bloom C. Miranda, Læliocattleya Mygdon (C. Trianæ × Lc. luminosa), Lc. Myra splendens, Sophrocattleya Olive, with three blooms, Sobralia macrantha and others. Here were a number of healthy Sobralias, a strong plant of Eulophiella Peetersiana, and E. Elisabethæ with spikes just showing. A batch of over fifty plants in bloom of Miltonia Bleuana made a fine display, and the seedlings, which were from the same pod, showed a certain amount of variation. A plant of the rare Cattleya Warscewiczii alba was pointed out, and we noticed a number of seed pods from which interesting seedlings are expected.

In the Cypripedium house a good many interesting things were in bloom, though the majority were over, as may be judged from the fact that over six hundred flowers had already been cut. Several plants of C. aureum varieties Hyeanum, Œdippe, virginale and Surprise were making a fine show, and we noted also the handsome C. Leeanum J. Gurney Fowler, C. Æson giganteum, a particularly fine C. villosum, C. Fascinator, C.

insigne Sanderianum, C. Pyramus var. Prince Albert (Hera × Mrs. Wm. Mostyn), with a purple suffusion on the dorsal sepal, and others. The Lycastes were making a bright display, and it was interesting to compare a good plant of L. Imschootiana with its parents L. Skinneri and L. cruenta. The pair of strong spines at the apex of the bulb of L. cruenta were pointed out as half-developed in the hybrid, another quite intermediate character, for they are not developed in L. Skinneri. L. Skinneri alba was very beautiful, and there were five good plants of Bifrenaria Harrisoniæ in flower and bud.

In another Odontoglossum house we noted a number of healthy seedlings from choice crosses, with forms of O. crispum and hybrids in spike or flower, and among Odontiodas were plants of the beautiful O. Royal-Gem, and O. Joan Fowler's var., the latter a very yellow flower, with zones of red blotches on the segments, a strikingly beautiful and distinct form, and of excellent shape.

One house has been specially laid out for raising seedlings in, and contains a number of glazed cases in which the seeds are germinated on canvas stretched over balls of sphagnum moss. Here were seedlings in almost every stage from the tiniest green globules upwards, the larger ones being in small pots on the stages. Mr. Gurney Fowler has taken up the fascinating work of hybridising with great enthusiasm, and keeps a systematic record of all his crosses, these being recorded in a book by a series of running numbers, which are added to the label of each plant, and thus the history of each can be traced by means of the record book.

In the office we were shown a Card Index containing the history of each individual cross, and to which such details are subsequently added as it may seem desirable to record. These records will be invaluable when the seedlings reach the flowering stage and suitable names have to be provided. We also saw a fine series of paintings of certificated plants and others in the collection, and as these represent largely the plants that are being used in hybridising they will become increasingly valuable as time goes on.

The Cool house at the back of the Corridor is largely devoted to Cymbidiums, Masdevallias, and other Cool-growing kinds, among which a few were in bloom, especially among the Cymbidiums, and a greater number promised a display of flowers later on. We were particularly interested to see the Cymbidium glebelandense, raised in the collection from C. Schrœderi × insigne. Several plants were beginning to flower, and present the same intermediate characters as does the natural hybrid C. Cooperi, which evidently arose from the crossing of the same two species, which grow intermixed in Annam. Other plants in the house were less particularly noticed, chiefly through lack of time, but we may have an opportunity of saying more about them on some subsequent occasion.

The collection has long been under the care of Mr. J. Davis, an experienced and able grower, and under its new and improved conditions, with the greater attention that is being paid to hybridisation, it is rapidly increasing in interest, for there are many seedlings from promising crosses which are steadily progressing towards the flowering stage, and a number of seed pods observed show that the work is being carried on with enthusiasm. We congratulate Mr. Gurney Fowler on the condition of his fine collection, which augurs well for an increased measure of success in the future.

OBITUARY.

ELIZABETH LADY LAWRENCE.—We regret to hear of the death, in London, on March 18th, of Elizabeth Lady Lawrence, widow of Sir Trevor Lawrence, Bart., late President of the Royal Horticultural Society. Lady Lawrence shared her husband's love for Orchids, and since his death, in December, 1913, has maintained the fine collection at Burford, Dorking, a considerable number, however of the species of special botanical interest having been presented to the Royal Botanic Gardens, Kew, by Sir Trevor's wish (see *O.R.*, xxii. p. 176). We may recall that at the last Holland House Show Lady Lawrence exhibited an inflorescence of the remarkable Cypripedium Stonei platytænium, when its history was given very fully (*O.R.*, xxiii. p. 250), and in February last an inflorescence of the fine Eulophiella Peetersiana was also exhibited. Soon afterwards the unique plant of Warscewiczella amazonica also flowered at Burford, and its history is given at page 104. The funeral took place at St. Michael's Church, Mickleham, on March 21st.

ODONTOGLOSSUM LEANDER II.—A magnificent flower of Odontoglossum Leander II. is sent from the collection of Sir John Edwards-Moss, Roby Hall, Torquay, through Messrs. Sander & Sons, one of the most beautiful that we have yet seen. The segments are very broad, slightly recurved and very prettily crisped, and the flower measures $3\frac{3}{4}$ inches from tip to tip of the petals. The colour may be described as a rich ruby-claret, with a narrow whitish margin and a few irregular narrow streaks, which in the petals take the form of an irregular zone about $\frac{1}{4}$ inch within the margin. On the broad, well-shaped lip occurs a broader zone of white, well within the margin, and here the colour takes the form of numerous nearly confluent spots. It is a very brilliant acquisition. There is, unfortunately, no record of parentage, and although we suspect it to be a form of some existing hybrid, we have not yet been able to locate it among the numerous combinations with O. crispum.

DENDROBIUM PIERARDII AND D. PRIMULINUM.

AN interesting Dendrobium has flowered in the collection of Captain W. Horridge, Bolholt House, Bury. Captain Horridge writes: "I send you portions of two pseudobulbs cut from a clump of Dendrobium primulinum imported two years ago. One is the ordinary variety. The other appears to be either a particularly stout variety of D. Pierardii or a natural hybrid between this and D. primulinum. In flowering habit it is entirely similar to D. Pierardii; the buds, which with their pedicels are deep chocolate purple, are pushed singly or in pairs direct from the nodes (not developing within membranous sheaths as in D. primulinum), and the stems attaining almost full height before the buds begin to swell appreciably. The growth from which this has been cut measured 33 inches and bore 22 flowers. The clump came out of an importation by Messrs. Sander & Sons, who give the habitat as Burma, in or near the D. Wardianum district."

This is particularly interesting, and recalls a Dendrobium which flowered with Messrs. Cypher, Cheltenham, in March, 1899. This was imported with D. Pierardii, and was taken for that until it flowered, when the resemblance to D. primulinum was apparent, and it was sent as probably a natural hybrid between the two species, a piece of the stem of D. primulinum being enclosed for comparison. The intermediate character is clear, and the inference follows that somewhere the two species grow intermixed.

D. PIERARDII is a very common and widely diffused species, extending from Nepal, along the lower slopes of the Himalayas, the Khasia Hills, Assam, Burma, and as far east as the Chengmai district in Siam, where it was collected in deciduous jungle by Dr. Kerr. It varies greatly according to locality, and Major-Gen. Berkeley states that the varieties growing in the hill ranges are the best; also that it is sometimes found in company with D. Parishii, with which it hybridises.

D. PRIMULINUM is nearly allied to D. Pierardii, differing in its shorter, stouter stems, nearly equal sepals and petals, and the broader, less expanded lip. It is found in Nepal, Assam, and Burma, while Dr. Kerr has somewhat recently collected it in evergreen jungle in the Chengmai district in Siam. In this case also Berkeley states that the effect of locality and climate are very marked, and that D. primulinum giganteum is the mountain form. He does not mention finding the two species together, though it is now evident that somewhere the areas overlap. Some of our Indian correspondents may have some evidence on this point. R.A.R.

DENDROBIUM BRYMERIANUM HYBRIDS.

A SUGGESTION on the following page recalls an article by Mr. R. G. Thwaites on "Dendrobium Brymerianum as a parent" (*O.R.*, ix. p. 340), and only three hybrids from it have yet been recorded. The first was D. Hunteri (Brymerianum × nobile), raised by H. J. Hunter, Esq., Grange Loan, Edinburgh, flowering in April, 1902. It most resembles a light D. nobile, with a zone of yellow round the light maroon blotch of the lip, but shows no trace of the remarkable fringe. D. Arthur-Ashworth (Dalhousieanum × Brymerianum) was raised by E. Ashworth, Esq., Harefield Hall, Wilmslow, and received Awards of Merit in Manchester and London in 1906 (*O.R.*, xiv. pp. 215, 310). It has yellow flowers, and a slghtly fringed lip, bearing a pair of light purple blotches at the base. D. atro-Brymerianum (atroviolaceum × Brymerianum), was raised by R. G. Thwaites, Esq., Streatham, and received a Certificate of Appreciation from the R.H.S. in February, 1904 (*O.R.*, xvii. pp. 85, 91). It has greenish yellow flowers, dotted with dusky brown, and the lip only slightly denticulate.

Fig. 25. DENDROBIUM BRYMERIANUM.

HYBRID DENDROBIUMS.

IN the last number of the *Orchid Review* (p. 65) you invite discussion upon Hybridisation, particularly as it relates to the genus Dendrobium. There are probably few places in which a larger number of experiments have been made with this genus than in my garden at Gatton. To give anything approaching an exhaustive account of the results is impossible, and I cannot give the time to make this letter so complete as I should like, or as would be the case in less critical times. After all, the result, as would be expected, varies little from that obtained in respect to other species, and is as full of disappointment and surprises. Who, for instance, would anticipate that the insignificant and dull D. aureum would give the brilliant D. Artemis, and, as a secondary hybrid, D. Lady Colman! and that when united with D. signatum, it would give such a poor result as D. Ophir? Again, it seems inconsistent that crossing together the finer varieties of hybrids and species, of which D. Rubens elegans, D. nobile nobilius, and D. Lady Colman may be taken as types, we do not more frequently obtain as results extra large-sized and deep-coloured varieties. Is there some hidden virtue in D. aureum which produces increasing size and substance in succeeding generations, and has the limit been reached with D. Lady Colman? The latter crossed with D. Rubens elegans—one of my finest hybrids—has produced a smaller, not as hoped, a larger flower, although still something very much finer than we were accustomed to a few years ago. Other experiments in the same direction have not yet been proved by flowering. Again, the insignificant but distinct D. Hildebrandii, of which you gave an account and figure at page 73, has proved one of the most satisfactory of parents, and has produced some of the most lovely of the Dendrobium hybrids, amongst which pre-eminently stands D. Wiganianum; and the secondary hybrids from this have in many cases proved almost equally charming, for instance, D. Duchess of Albany, D. Princess Patricia of Connaught, and D. Mrs. Alfred Rogers, all raised at Gatton, and akin to D. Wiganianum. On the other hand, who can have anticipated the miserable results of crossing such delicate and pleasing varieties as D. nobile virginale with D. viridescens? At Gatton nearly everything has been crossed and recrossed with D. signatum; but although a few very fine results, as D. chessingtonense and D. Golden Ray, have been obtained, the result on the whole is disappointing, and we have not yet succeeded in obtaining a large yellow-flowered hybrid, which has been our aim and ambition. Anyone who can successfully hybridize such varieties as D. formosum giganteum, D. Dalhousieanum, D. chrysotoxum, and similar

species which will at once suggest themselves, with the nobile section, will be likely to secure a triumph. The fact that successes have been made with some of these would go to show that to obtain favourable results is not outside possibility.

I communicate these few remarks in the hope that they may lead to a discussion which can but be interesting and advantageous to Orchid lovers, and I send a few of the flowers referred to, that happen to be in bloom, rather hoping that you may be inclined to supplement my remarks with some useful views. JEREMIAH COLMAN.

Gatton Park.

Twelve interesting flowers are sent, and, before mentioning them, we may refer to one or two of the points raised. A good yellow of the nobile type has long been a desideratum, but the difficulty has been that there is so little to start with. D. aureum is buff rather than yellow, and soon proved a failure so far as the latter colour is concerned. There remained D. signatum, with clear yellow flowers, though of smaller size, and, moreover, weak in habit, but it proved the stepping stone to success, for, united with D. nobile, it gave D. Wiganiæ, with a trace of the desired colour (especially in the variety xanthochilum) and an improved shape, and it has been followed by D. Imogen (from euosmum), D. Melpomene (from Ainsworthii), D. Ophir (from aureum), D. clarense (from Findlayanum), D. Myra (from Linawianum), D. Buttercup (from Rolfeæ), and one or two others. And D. Wiganiæ, in its turn, has given the rich yellow D. chessingtonense, D. Thwaitesiæ, and some others. In fact yellow now forms a considerable class in our collections, as we saw at page 76.

The exceptional size of D. Artemis (a variety of D. Gem) we should attribute to D. nobile nobilius, and not to any hidden quality of D. aureum. Its parentage is D. Ainsworthii splendidissimum (aureum × nobile nobilius) × aureum Gatton Park var. (a large aureum), and this would be expected to give increased size, which in turn would be handed on to D. Lady Colman (Artemis × Findlayanum). D. Rubens grandiflorum represents D. Ainsworthii splendidissimum recrossed with the other original parent, and the reason for its size is equally apparent. There is nothing among D. signatum comparable in size to D. nobile nobilius, and to this fact may be attributed the smaller size of the yellow hybrids. But D. signatum crossed with these large forms should give something equivalent to D. Wiganiæ in colour, and size would probably follow. Any other yellow would be available, and we should like to know if a cross of this kind has been tried. Failing this, size will probably follow by further crossing and selection among the yellows, probably associated with a tendency to produce fewer flowers. In the meantime we are inclined to regard mere lack of size as a minor defect in such free-flowering plants.

Attempts to cross the nobile group with large-flowered or brilliantly-coloured species of other selections have seldom succeeded, and there is an incompatibility between the constitutions of such diverse plants that often spoils the results. It is certainly desirable to experiment, but in view of the immense number of failures, many of which are seldom heard of, too much cannot be expected of them. The greater the number of diverse characters possessed by any pair of species which it is sought to unite the smaller seems to be the hope of success.

A few additional flowers and notes were sent after the above was in type. Two forms of D. chessingtonense (aureum × Wiganiæ) from the same seed pod are remarkable, one being deep orange-yellow with a maroon blotch on the disc, the other a beautiful ivory white with a very dark disc. Of two forms of D. Ceres (Wiganianum × Melpomene) one is cream yellow with light yellow disc, the other has pink tips, and the lip orange yellow with a blackish maroon disc. Of two forms of D. Duchess of Albany (Wiganiæ × Wiganianum) the smaller is light sulphur yellow, the larger white, flushed with pink, and both with a light rose blotch on the disc. D. viridescens (Wiganianum × aureum album) is a small white with a greenish yellow disc. D. Princess Patricia of Connaught (Wiganianum purpureum × Rubens Euryalus) is a charming thing, the segments light below and rose-purple above, and the lip pale sulphur with rose-purple disc. D. Golden-Ray (signatum × Rubens) is a beautiful yellow, with a large maroon blotch on the disc. D. Mrs. Alfred Rogers (Findlayanum × Hildebrandii), a form of D. Boundii, is white with a large yellow disc. D. nobile nobilius × signatum gives an improved D. Wiganiæ, the segments well flushed with rose, and the centre of the lip orange-yellow with a dark disc. And, by the way, Sir Jeremiah remarks that he has nearly always used D. nobile nobilius in his own crosses, which would account for size, substance, and colour. The other flowers (there were twenty in all) have been already mentioned, but we may conclude with the following remarkably fine hybrid :—

D. GATTON-DIAMOND, a beautiful white, with an expanse of 4½ inches from tip to tip of the petals, and a circular, bright rose-purple, slightly feathered blotch on the light yellow lip. Its descent is thus expressed :—

aureum × nobile nobilius.

Findlayanum × Ainsworthii splendissimum. signatum × nobile.

melanodiscus Salteri × Wiganiæ splendens.

Gatton Diamond.

It most resembles an enlarged D. Ainsworthii with a reduced disc and a suffusion of yellow round it. D. nobile occurs twice in the ancestry, yet its colour is practically eliminated, and D. signatum is little in evidence, but probably other seedlings from the same batch will be quite different.

CALENDAR OF OPERATIONS FOR APRIL.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE climatic conditions with us, since my last, have been of the worst possible nature; one continued spell of dull, wet weather, with a cold north-east wind which has been felt by the inmates of our houses, and the want of light and sunshine has retarded growth. By the time this appears in print I hope we may have a change to more spring-like conditions.

TEMPERATURES.—Where the temperatures were raised, as advised last month, they may continue for the present, with a slight increase by sun heat, except in the Cool house, which, during hot weather, should be kept as cool as possible. Artificial heat in this department should be dispensed with whenever practicable.

WATERING.—The plants will now take up more water at the roots, but excess must be guarded against. The increase of solar heat and the more humid conditions will be conducive to healthy growth.

VENTILATION, during this fickle month, must have the greatest attention, and this, combined with shading, will be the means of keeping the different houses in that sweet and healthy condition which the plants revel in. The whole secret of successful plant culture under glass depends upon the conditions provided, and these are largely under the control of the grower.

DENDROBIUMS.—Although not so popular as they were a few years ago, these plants are still delightful subjects. Taking the genus as a whole, there is probably no other with such diversity, as regards size, form, and colour of flower, and habit of growth, and almost the whole year round some member of the genus will be in bloom. My remarks, however, refer to the spring-flowering species and hybrids, which are the flowers of the month, and fill up the gap which comes between the Cypripediums and the earliest of the Cattleya family. D. nobile and its many hybrids are extremely useful. As the different plants pass out of flower, and commence to push forth growths and roots from the base of their pseudobulbs, any necessary repotting should be attended to. The disturbance of plants that are well established in good material should be avoided, but those in which the compost is in a loose and sour condition must have attention. Well-drained pots, pans or baskets are suitable receptacles for these plants, and the potting may consist of any good clean fibre, either A1 or osmunda, and sphagnum moss, in equal proportions. Pot the plants moderately firmly, keeping the base of each slightly below the rim of the receptacles.

During the early stages of growth water must be applied with great discretion, but when the roots become active, and have entered freely into

the new material, more liberal supplies may be given. From the time that the plants are established until their pseudobulbs are fully developed a hot, moist buoyant atmosphere is necessary. Each year a few pseudobulbs of the best varieties should be cut up for propagation purposes. The stems should be severed between the nodes, and several portions may be placed in small pots filled with silver sand, placing them in a warm propagating frame, and when new growths appear, and are making roots, they may be repotted in small pots singly, and treated in the same way as established plants. There are many fine hybrids amongst the spring-flowering section, and I may be able to deal with them at some future time.

OTHER WARM HOUSE ORCHIDS that thrive in the same house as Dendrobiums include Mormodes, Catasetums, Cycnoches, Schomburgkias, and Thunias, and all like a decided resting season. They are best repotted annually, and with the exception of the Thunias, will succeed in the same material as Dendrobiums.

LYCASTES.—Plants of this genus, species and hybrids, will develop new growths as they pass out of flower, and those that are in need of new rooting material should have attention. As regard hybrids, it is rather surprising that more have not been raised, considering what advances the few we have are upon the parents used. Specimens that are pot-bound should be given larger pots, sufficient to accommodate them for at least two seasons. Plants that have been enfeebled, either from the loss of roots or any other cause, should be carefully shaken out and placed in pots just large enough to hold them. Lycastes succeed in a similar compost to the green-leaved Cypripediums, and should be grown in the Cool Intermediate house.

CATTLEYAS AND ALLIES.—These at the present time are perhaps the most popular of all Orchids, and rightly so, for their gorgeous flowers are always appreciated for any kind of decorative work. If the different species and hybrids are potted when they are about to push roots from the base of the pseudobulbs, and treated as advised in previous numbers, good results will accrue. No plants resent more a stuffy close atmosphere.

LÆLIAS of the anceps section that are in need of new rooting material should be attended to at once, as, if the new roots attain any length, there is danger of their getting broken, and the plants receiving a check.

MILTONIA VEXILLARIA, and its numerous hybrids that are pushing up their flower spikes, must have water whenever they become dry. The Cool Intermediate house is an ideal place for them at this season.

CŒLOGYNE CRISTATA.—If this old favourite is in need of new material it should have attention when the new growths are about to push forth new roots. A compost similar to that used for the green-leaved Cypripediums will answer their requirements. Any other Cœlogynes that have passed

out of bloom, and are making new growths, may receive similar treatment. There are several small-growing members of this genus which flower at this season, and when in bloom are delightful subjects, owing to the quantity of blooms they produce. Care must be taken in potting not to overburden their roots with compost. The majority of these plants succeed in Intermediate house temperature during the summer months, and when well established, and in full growth, require an abundant supply of water at the roots.

ANGULOAS that are pushing up their flower spikes are best potted directly the flowers fade. They are best grown in pots in the compost advised for the green-leaved Cypripediums, and must be given a light position in the Intermediate house. Care must be taken that no moisture is allowed to remain in the centre of the young growths.

SACCOLABIUMS, Aërides, and Angræcums that are in need of new rooting material should have attention at once, as, with the more favourable conditions of growth, they will push roots rapidly. Any other plants of similar character may have attention at the same time, should they need it. A suitable compost for this class of plants is made up of equal portions of osmunda fibre and sphagnum moss, cut up moderately finely, and mixed well together, or all sphagnum moss and fine broken crocks can be used.

CALANTHES.—Several varieties of the C. Regnieri section are now in bloom, and although these late-flowering varieties have not received the same amount of attention as C. Veitchii and those that flower at the same season, they are useful and desirable Orchids. As soon as their flowers are faded these plants, too, may be repotted, and treated as advised for C. Veitchii and C. vestita.

MAXILLARIAS.—As soon as the species which flowered during the winter months become active at the roots they should receive attention, if in need of new material. Pots, pans, or baskets are suitable receptacles, and a compast as advised for Odontoglossums will answer their requirements. Careful watering after disturbance is necessary, as in the case of any other Orchid. M. Sanderiana and others that flower at a later season should not be disturbed until their flowering period is over. All these will succeed either at the warm end of the Cool house or the Cool end of the Intermediate house.

ODONTOGLOSSUMS.—These delightful plants are now so numerous, so complex in parentage, and so varied in their season of growth, that some are in need of new material at almost every season, but if the compost is sweet and healthy it is always advisable to defer potting until the cooler autumn months.

GENERAL REMARKS.—With the present month we have reached that season when work presses on apace, and Nature, in her demands, is very

exacting. The usual routine of cleaning, the war against insect pests, and such small details of successful cultivation must have every attention, especially the environment of so-called difficult plants. Vigilance in these matters is half the secret of success.

WARSCEWICZELLA AMAZONICA.

WARSCEWIZCELLA amazonica is by far the finest species in the genus, and is, we believe, only represented in cultivation by the unique plant in the collection of Elizabeth Lady Lawrence, at Burford (gr. Mr. E. Swinden), which has just bloomed again. The flowers are very large, the lip having an expanse of two inches, and the colour is white, with slight radiating purple lines on the disc. It was originally discovered in May, 1853, by Warscewicz, when collecting in the Upper Amazon district, and was described by Reichenbach in the following year (*Bonplandia*, 1854, p. 97) from an original coloured drawing, which was all that was known to him. The author described it as having flowers twice as large as in W. discolor, snow white, with long purple lines on the disc of the lip. He afterwards found a fine dried flower in the Lindley Herbarium, where it is still preserved. A figure was also published (*Xen. Orch.*, i. p. 222. t. 99, fig. 2), with the information that it was sold by auction in London as "Probably a new Huntleya. Dead or doubtful. Still has life in it" (this presumably from Warscewicz's Sale Catalogue). Reichenbach afterwards reduced Warscewiczella to a section of Zygopetalum, and the plant became Zygopetalum amazonicum (Rchb. f. in *Walp. Ann.*, vi. p. 655). Its appearance in cultivation, nearly forty years later, was quite unexpected; in fact its identity was then unknown. On June 7th, 1892, a very beautiful Warscewiczella was exhibited at a meeting of the R.H.S. by Messrs. Linden, Brussels, under the name of W. Lindeni, and was awarded a First-class Certificate. It then passed into the collection of Sir Trevor Lawrence, Bart., at Burford, and was subsequently figured in *Lindenia* (viii. t. 337) under the name of Zygopetalum (Warscewiczella) Lindeni, Rolfe, Reichenbach's arrangement having been adopted by Bentham in the *Genera Plantaram*. Nothing was stated about the origin of the plant; but somewhat later flowers were sent by Mr. E. S. Rand, of Pará, who had obtained the plant in the Upper Amazon district, and the information led to its identification with the earlier but imperfectly known plant of Warscewicz, and its history was given (*O.R.*, ii. p. 304). It is strange that so beautiful a species should still be so imperfectly known, and, apparently, so difficult to propagate.

R.A.R.

LÆLIA JONGHEANA AND VAR. ASHWORTHIÆ.

LÆLIA Jongheana is a dwarf Brazilian species, a native of the Province of Minas Geraes, differing from L. Dayana, its nearest ally, by its much larger flowers, and by the elongated, tubular lip, with deep orange throat bearing a number of fringed keels. Its history has already been given (*O.R.*, iv. p. 278), and the annexed figure represents a plant which flowered in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury.

Fig. 26. LÆLIA JONGHEANA.

The species was long very rare, but some years ago Messrs. Sander & Sons obtained an importation, in which a beautiful albino appeared. It flowered in the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, and received a First-class Certificate from the R.H.S. in April, 1901 (*O.R.*, ix. p. 153). The plant still flourishes, and Mr. Ashworth sends us a flower of it. The colour may be described as silver white, with the throat of the lip orange. Mr. Ashworth asks if another plant of it is known.

SOCIETIES.

ROYAL HORTICULTURAL.

A HEAVY fall of snow limited the number of exhibits at the meeting held on March 7th, and the visitors were not numerous. Orchids, however, were fairly represented, and the awards consisted of one First-class Certificate, two Awards of Merit, and four Medals.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry, J. Veitch, W. Bolton, R. B. White, S. H. Low, G. Wilson, T. Armstrong, J. Charlesworth, J. Cypher, W. H. Hatcher, S. W. Flory, and C. Cookson.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM THE CZAR (parentage unrecorded).—A very fine thing, of excellent shape and substance, and having broad, claret-purple sepals and petals, with a narrow fringed white margin, and a little more white on the lip, the crest being yellow. The colour suggests a descent from O. Vulystekei. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CYMBIDIUM ALEXANDERI EXCELSIOR (insigne × Veitchii).—A charming thing, having rosy sepals and petals with somewhat darker lines, and the lip with a spotted band of ruby-red in front, and some rose-coloured markings on the side lobes. Exhibited by Messrs. J. & A. McBean.

ODONTIODA JOAN FOWLER'S VAR. (Oda. Charlesworthii × Odm. armainvillierense).—A very beautiful form, having broad, yellow sepals and petals, with irregular zones of red-brown blotches, and the lip with a large red-brown blotch in front of the yellow crest, and some smaller red dots in front. Exhibited by J. Gurney Fowler, Esq.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), showed a well-flowered Luisia Cantharis (Rolfe), with beetle-like lip, the rare Acanthophippium sylhetense, Cælia macrostachya, Dendrobium viridiscens, the handsome D. chessingtonense, D. Wiganianum Gatton Park var., D. Euryalus, D. Rubens elegans, and other showy forms.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent Cattleya Trianæ Amesiana, white form, with blush-pink front to the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including a dozen plants of Odontoglossum crispum xanthotes, some good blotched forms and hybrids, with several brilliant Odontiodas, the brilliant Cattleya Trianæ Grand Monarch, Sophrocatlælia Marathon, Masdevallia Harryana lilacina, Læliocattleya bella alba, &c. (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including Cymbidium Cooperi, C. roseum and C. Mavis, which were imported with C. insigne, Cattleya Muelleri, Magali-Sander, and Suzanne Hye, three beautiful whites, Sophronitis violacea, Sarcochilus Fitzgeraldii, Trichopilia suavis, and some Odontiodas and Odontoglossums, with a number of botanical Orchids (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a very attractive group, including some good Cymbidiums, Cypripediums, Masdevallias, and Odontoglossums, well-bloomed examples of Sophronitis grandiflora, Angræcum citratum, Læliocattleya Cappei, Ada aurantiaca, with some good Dendrodium Wardianum and D. nobile (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a nice group, in which Cymbidiums and Odontiodas were particularly fine, while Odontoglossum Gladys, O. amabile, Læliocattleya Beatrice and Myra were also noteworthy (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group, including Odontioda Verdun (Oda. Charlesworthii × Odm. Armstrongiæ), dark ruby-claret, with the front of the lip white, Cypripedium ardens (glaucophyllum × Miss Louisa Fowler), with white dorsal sepal, dotted with purple and the base green, and the lip and petals tinged with rose, C. Holdenii, and a few good Læliocattleyas and Dendrobiums.

Mr. H. Dixon, Wandsworth, staged a small group of Odontiodas, Lycastes, and Cymbidiums.

Messrs. Flory & Black, Slough, sent Brassocatlælia Hilda (Bl. Veitchii × C. labiata), rose, with sulphur yellow disc to the lip, Odontoglossum Lambeauianum, Zygycolax Veitchii, and others.

Messrs. Hassall & Co., Southgate, sent a pretty light form of Lycaste Skinneri, Cymbidium Holfordianum, and the White Cattleya Suzanne-Hye.

Messrs. Stuart Low & Co., Jarvisbrook, sent Læliocattleya labiosa Illuminator, a pretty rosy flower with a darker lip.

At the meeting held on March 28th there was a fair display of choice Orchids, and the awards consisted of two First-class Certificates, three Awards of Merit, three Preliminary Commendations, one Cultural Commendation, and four Medals.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (Hon. Sec.), Sir. H. J. Veitch, R. Brooman White, Sir J. Colman, Bart., S. H. Low, R. A. Rolfe, R. G. Thwaites, F. J. Hanbury, P. Ralli, E. R. Ashton, A. McBean, J. Charlesworth, S. W. Flory, Col. J. Rutherford, C. J. Lucas, and G. Wilson.

First-class Certificates.

Odontioda Gladys (Odm. Pescatorei × Oda. Bradshawiæ).—A fine

hybrid, bearing a long spike of rosy flowers, the centre of the segments being light yellow, with a zone of cinnamon spots. Exhibited by G. W. Bird, Esq., West Wickham.

SOPHROCATTLEYA REX ORCHIDHURST VAR. (Sc. Doris × C. Empress-Frederick).—A large orange-red flower of good shape, with darker lip and some yellow in the throat. Exhibited by Messrs. Armstrong & Brown.

AWARDS OF MERIT.

LÆLIOCATTLEYA VERDUN (Lc. Violetta × C. Schrœderæ).—A fine hybrid, with broad, rosy lilac sepals and petals, and the lip purple with a large yellow throat. Exhibited by Messrs. Flory & Black.

LYCASTE SKINNERI MRS. G. HAMILTON SMITH.—A very large and richly-coloured form, the plant bearing six flowers. Exhibited by Cyril Warren, Esq., Ravenswood, Bexley.

ODONTIODA ALCANTARA (Oda. Cooksoniæ × Odm. eximium).—A beautiful hybrid, having purple flowers of good shape, with irregular darker blotches. Exhibited by Messrs. Charlesworth & Co.

PRELIMINARY COMMENDATION.

ODONTIODA CEREUS (Odm. excellens × Oda. Charlesworthii).—A richly-coloured flower, with broad, ruby crimson segments. and a well-shaped lip. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM CRISPUM PERFECTION.—A finely-shaped flower, with broad segments, suffused and blotched with claret-purple. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM PROMERENS ORCHIDHURST VAR. (eximium × crispum).—A fine white flower, with a large chestnut brown spot on each segment. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

ODONTIODA THE CZAR (Oda. Vuylstekeæ × Odm. Jasper).—To Messrs. Armstrong & Brown for a finely-grown plant, bearing a panicle with eight side branches, and numerous rosy purple flowers spotted with cinnamon.

OTHER EXHIBITS.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent two magnificent forms of Brassocattleya Cliftonii, which have already received First-class Certificates, Fowler's var., white with a large deep yellow throat, and magnifica, lilac purple with the front of the lip rich crimson purple.

E. R. Ashton, Esq., Camden Park, Tunbridge Wells, sent Lælio-cattleya luminosa aurea, with deep yellow sepals and petals and a dark purple lip.

G. W. Bird, Esq., West Wickham, sent Odontioda Red Riding Hood (Oda. Bradshawiæ × Odm. Rossii), having dark scarlet flowers most like the latter in shape.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum crispum Lucilla (c. Luciani × c. roseum), a good form, with well crisped segments bearing numerous orange-cinnamon blotches.

Dr. Miguel Lacroze, Roehampton Lane, S.W., sent a plant of Odontoglossum Glorita, a pretty G. Rossii hybrid, having flowers well blotched with red purple on a whitish ground.

Messrs. Charlesworth & Co., Haywards Heath, staged a large and brilliant group, the special feature being about sixty richly-coloured Odontiodas, including forms of O. Charlesworthii, Bradshawiæ, Zenobia, Eurydice, Schrœderi, Madeline, Joan, and others, arranged with Odontoglossum crispum xanthotes and several others, some good Miltonia Bleuana, Trichopilia crispa, Læliocattleya Dominiana, the handsome Lc. Momus, two fine spikes of Neomoorea irrorata, and others (Silver-gilt Flora Medal).

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent a good form of Brassocattleya Leemaniæ.

Messrs. J. & A. McBean, Cooksbridge, staged a fine group, the back consisting of rosy and light yellow forms of Cymbidium Alexanderi, several good Odontiodas, Miltonia Bleuana and Hyeana, Lycaste macrophylla, and several good Cypripediums, one beautiful deep yellow form with a narrow white margin to the dorsal sepal showing most of the villosum character (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, sent a few good plants of Cattleya Schrœderæ, Lycaste Skinneri, Cymbidium insigne and eburneum, Miltonia Bleuana, Odontioda Bradshawiæ and Cochlioda Nœtzliana (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a small but very varied group, including a good Uropedium Lindenii with three flowers, the striking Maxillaria Fletcheriana, M. leptosepola and M. luteoalba, Ornithidium coccineum, Vanda cristata, Cœlogyne ochracea, the fine Lycaste Skinneri Mrs. G. Hamilton Smith, a fine Cœlogne Lawrenceana, Cymbidium insigne, and others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent several promising seedling Odontiodas and Odontoglossums, three gaining Commendations.

Messrs. Flory & Black, Slough, sent the pretty Odontioda Sunbeam (Oda. Vuylstekeæ × Odm. Lambeauianum), having rosy flowers with yellow markings on the segments, the rare Cochlioda rosea, a fine Disa sagittalis with 15 spikes, the pretty Læliocattleya Boylei Langley var., and Cypripedium aureum Hyeanum × Countess of Carnarvon, of the C. villosum type.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a small group of choice things, including good examples of Dendrobium Jamesianum and Brymerianum, a fine Odontioda Bradshawiæ, Læliocattleya Ballii and Dominiana, Sophrocatlælia Marathon.

Mr. C. F. Waters, Balcombe, staged a small group, including several good Odontoglossum crispum and Lycaste Skinneri, with Miltonia Bleuana and two or three Cypripediums.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on March 2nd, 1916, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. C. Cowan, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift, G. Weatherby, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum plumptonense var. Majestic (Lambeauianum × amabile), a large crimson-purple flower, of excellent form, and the lip slightly darker, with a yellow crest, and O. Clyte albens (Edwardii × Pescatorei), a large, well-shaped flower, differing from the purple type in having the groundwork of French grey, and the lip spotted with purple; from Rd. Ashworth, Esq.

Cattleya Trianæ var. Sunrise, a flower of wonderful form, and Lælio-cattleya Nelthorpe Beauclerk Haddon House var. (Lc. Gottoiana × C. Enid), a large, well-set flower, with well-fringed lip; from P. Smith, Esq.

Cypripedium Tom Worsley (Actæus langleyense × Helen II.), a flower of pleasing shape, dorsal sepal porcelain white and lightly spotted, and C. Commodore (Alcibiades × memoria Jerninghamiæ), a large flower, dorsal sepal, white, with broad maroon band; from Tom Worsley, Esq.

AWARDS OF MERIT.

Odontoglossum princeps Walton Grange var. (crispum × Lawrence-anum), O. eximium Perfection, and O. e. Moonbeam; from Wm. Thompson, Esq.

Odontoglossum eximium var. Purple Gem, and O. crispum var. Haddon Glory; from P. Smith, Esq.

Cypripedium Alcibiades nobilior, and C. Carteri (Earl Tankerville × ?); from Tom Worsley, Esq.

Cattleya Schrœderæ var. Rossendale: from Rd. Ashworth, Esq.

Odontoglossum crispum var. Dingle; from F. Houghton, Esq.

Odontoglossum Arthur (parentage ?); from the Hon. Robert James.

CULTURAL CERTIFICATES.

To Mr. W. Gilden (gr. to Rd. Ashworth, Esq.), for Odontoglossum aspersum, with 15 flowers on a branched spike.

To Mr. J. Howes (gr. to Wm. Thompson, Esq.), for Dendrobium Wardianum, plants in small pots carrying huge trusses of bloom.

N.B.—The Cypripedium William Rees (Hitchinsiæ × Milo), exhibited by Tom Worsley, Esq., which gained an Award of Merit on January 6th, will be recorded as C. Euphrates var. Wm. Rees.

Other Exhibits.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and W. Thompson, Esq., Stone (gr. Mr. J. Howes), for fine miscellaneous groups, and to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for a fine group composed chiefly of Cypripediums.

A Bronze Medal was awarded to Messrs. A. J. Keeling & Sons, Bradford, for a good group of Odontoglossums, Dendrobiums, Cypripediums, and others.

Interesting exhibits were also sent by Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Frank Houghton, Esq., Appleton (gr. Mr. W. Maddock); The Hon. Robert James, Richmond, Yorks (gr. Mr. J. Benstead), and Mr. W. Shackleton, Bradford, some of which appear in the List of Awards.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during April, on the 11th and 18th (only a week apart), when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for May 2nd.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on April 13th and 27th. The Committee meets at noon, and the exhibits are open to inspection 1 to 4 p.m.

The Chelsea Show.—At the last meeting of the R.H.S. Orchid Committee the Chairman, Mr. J. Gurney Fowler, raised the question of the exhibits of the forthcoming Chelsea Show, owing to the difficulties of labour, carriage, and other considerations caused by the War. Sir Jeremiah Colman and others thought that while sufficient should be done to make a good show, it was desirable to make some reduction, and it was agreed to limit groups to an area of 120 square feet with a twenty feet frontage.

Bristol Gardeners' Association.—At the February meeting prizes were given by Col. Cary Batten, J.P., for two Cypripediums, which were won as follows: 1st, Mr. Jennings; 2nd, Mr. Curtis; and 3rd, Mr. Scott, while Mr. Bastow gained five points for Dendrobiums in the point competition. Orchids were among the subjects debated at the evening meeting. At the March meeting Mr. Clarke gained five points for Cypripediums.

CYPRIPEDIUM TOM-WORSLEY.—A striking hybrid, derived from C. Actæus langleyense × Helen II., which received a First-class Certificate from the Manchester Orchid Society on May 2nd. Mr. T. Wood, grower to Tom Worsley, Esq., Carter Place, Haslingden, in sending a flower, remarks: "I think you will agree that this is an ideal type of Cypripedium, well balanced in every way, with a lovely pouch, and a nice colour throughout." The dorsal sepal is round, over two inches across, and white, with a little yellow at the extreme base, and several rows of light purple spots. The petals are broad, undulate, 2¼ inches long, and light yellow, with numerous brown dots along the centre, while the neat lip and staminode are yellow, the latter with an orange tubercle in the centre.

CYPRIPEDIUM NEBO (Arthurianum × Chamberlainianum).—A very attractive hybrid, raised in the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. The dorsal sepal is somewhat undulate, and light yellow, with confluent brown blotches below, running out into dotted lines above, and the horizontal petals are prettily undulate, and copiously blotched with dark brown. The light yellow ground colour gives it a very pretty effect.

LATH ROLLER BLINDS.—The shading season is now here, and Messrs. Walters & Co., Amberley Works, Morley Road, Croydon, have sent us their illustrated price list, with samples of the different kinds of blinds manufactured by them for shading Orchid houses and other plant structures. Their Lath Roller Blinds are too well known to require description, and are the most effective of shadings, admitting plenty of light while affording protection from the sun's rays. They are also effective when let down to maintain the night temperatures in winter. Samples of canvas, tiffany, and bamboo blinds are also sent. The firm also manufacture Orchid baskets, and other horticultural appliances of excellent quality. An advertisement appears on another page, and catalogue and samples will be forwarded on application.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

L. & H.—Bulbophyllum odoratissimum, Lindl. Native of N. India and China.

E.F.C.—Odontoglossum luteopurpureum, Lindl.

S.T.—A form of Odontoglossum mirificum (crispum × sceptrum).

J.D.W.—Possibly a form of Cypripedium Astræa (Spicerianum × philippinense), but a little uncertain from a coloured sketch.

C.R.—Stray seedlings can sometimes be identified from their characters or from the records of crosses made in the collection, but Odontoglossums are now so much mixed that it is often impossible to tell their exact origin. It only emphasises the importance of keeping careful records.

The Orchid Review

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OUR NOTE BOOK.

THE Notes on the Ecology of Orchids by Mr. J. L. Hermessen, at pp. 77-79, are extremely interesting and suggestive, and might with advantage be extended to other species, especially those which are difficult to grow under ordinary conditions. Many cases of failure can be attributed to the fact that the cultivator has no clue to the requirements of some plant that comes into his hands, and consequently places it under wrong or unnatural treatment, under which it succumbs. Mr. Hermessen remarks that very little of this kind of information is supplied in our Hand-books on Orchids, but the fact is that in many cases very little is known, and in others such information as is available is widely scattered and difficult to utilise. Importers have often been blamed for this lack of information, and not entirely without reason, although it is not always furnished by collectors. Even where cultural difficulties have been overcome it is interesting to know something of the conditions under which our popular Orchids occur in a wild state, and Mr. Hermessen's contribution forms a welcome addition to our knowledge of the subject.

Perhaps no more graphic illustration of the lack of information about a popular Orchid could be found than the history of Cattleya labiata, which a valued contributor now informs us (see page 120) is to be found in all the hills in the rainy belt region of Pernambuco, Parahyba and Ceara. What would this information not have been worth some thirty years ago, before the rediscovery of the long-lost plant! And it is not a little remarkable that the clue to Swainson's original locality was overlooked by everyone until the writer stumbled across it quite accidentally (see *O.R.*, viii. pp. 362-365). Yet, curiously enough, almost every locality considered at all possible, had been searched. And this does not quite complete the matter, for, in the meantime, the plant had been confused with C. Warneri and Lælia lobata (*O.R.*, xv. pp. 335, 336), which, indeed, was partly responsible for the fact that when rediscovered it was at first not recognised. The ecology and geographical distribution of Orchids is an interesting subject.

With respect to Sir Jeremiah Colman's interesting remarks on Hybrid Dendrobiums (page 98), a correspondent in the north suggests that one of the reasons why Dendrobiums have declined in popularity is that they are not so well adapted for show purposes as the Cattleya group and the ever-popular Odontoglossums; they also require more heat, and succeed best in a house by themselves. Again, they are less adaptable for general decorative purposes, though D. nobile and its hybrids are largely grown, and an increase in the range of colour would add to their popularity, especially where they can be accommodated in the Cattleya house. The season of blooming is also rather short. The difficulty mentioned of crossing the D. nobile set with other sections of the genus is rather a drawback, but it would be felt more strongly if any scarlet or crimson-flowered species were available for hybridisation, for the addition of such a colour would give quite an impetus to their culture.

This is precisely what has happened in the case of Odontoglossum. Less than twenty years ago the number of home-raised seedlings that had flowered could be counted on the fingers of one hand, and it was not until the Temple Show in 1904 that the first of the "scarlets" appeared and made such a sensation. That was the result of crossing the brilliant Cochlioda Nœtzliana with an Odontoglossum, an event which has revolutionised the Cool house, for Odontiodas are now almost the leading feature at some of our horticultural meetings, and their number is rapidly increasing.

The introduction of Cochlioda Nœtzliana was a far more important horticultural event than was at first recognised—it was originally called Odontoglossum, and as such received a Botanical Certificate from the R.H.S., in November, 1890—and but for a rather curious circumstance it might have been utilised earlier by the hybridist. Respecting this, an amusing story may be told. In the early days of Odontoglossum raising we were visiting a well-known collection, and on looking at a little batch of seedlings, remarked to the raiser, who is, unfortunately, no longer active, "Why not try Cochlioda? You might get a batch of scarlet Odontoglossums." He replied, "We have tried, and it won't take, the pollen tubes are too short, or something." We replied, "Make it the mother," when he startled us by exclaiming, "It's got no stigma!" We knew that that was impossible, and promised to investigate when a living flower was available. And then a curious condition of things was discovered, for, instead of the normal stigma of Odontoglossum, there were two stigmas, one at each side near the apex of the tube formed by the union of the lip with the sides of the column, a character that had been entirely overlooked by

everyone. The difficulty of making the Cochlioda the pollen parent is now well known, and the possibility of effecting the reverse cross was delayed because the structural peculiarity mentioned had not been discovered. It was an interesting discovery, and is not the only contribution to systematic botany that has been made by the hybridist.

R.H.S. ORCHID AWARDS.

WE have received from the Royal Horticultural Society the *List of Orchid Awards* given by the Society from 1859 to 1915 inclusive, of which mention was made at page 81 of our March issue. It consists of 81 quarto pages, interleaved for future entries. In a prefatory note it is explained that the names under which the plants were exhibited have been adhered to as far as possible. With regard to Garden-raised hybrids the parentage is given where possible, the records being generally based on those supplied by the Exhibitor; but where this was known to be incorrect or afterwards proved to be erroneous alteration has been made. The supposed parentage of natural hybrids and of some unrecorded garden hybrids are given in italics. In the larger genera the awards made to hybrids have been so numerous that for ease of reference they have been arranged separately from the species. The pages are ruled in five columns, the first containing the name, the second the award, the third (in the case of hybrids), the parentage, the fourth the exhibitor, and the last the date of award. An asterisk in the second column indicates that the society possesses a painting, a very useful piece of information. Incidentally it may be remarked that the blanks chiefly belong to the earlier varieties, before the system of securing paintings was initiated.

A glance through the names of exhibitors awakens many interesting momories. It is curious to note how the varieties of a few popular species help to swell the list, in the case of Odontoglossum crispum the varieties numbering as many as 191, which, however, is quite exceptional. We note with regret that the long and unwieldy word Brassolæliocattleya has been substituted for the much earlier Brassocatlælia, whose adoption is specially provided for in the rules, and a similar remark applies to Sophrolæliocattleya. Names consisting of eight syllables and no fewer than twenty letters should be avoided, and especially under the circumstances mentioned. For the present we must be content with having got rid of the two secondary capitals and two unnecessary hyphens. The list forms a very important record of one of the Society's activities over a long period, and being brought down to date supersedes the earlier lists of the same character.

ORCHIDS IN SEASON.

TWO magnificient Odontoglossums are sent from the collection of F. S. Roberts, Esq., Bannerfield, Selkirk. The first is from Odontoglossum crispum apiculatum × O. c. Luciani, and is from the same batch of seedlings as O. c. Robertsii (*O.R.*, xxi. pp. 208, 264, fig. 36). The shape is excellent, the petals 1¾ inches broad, well toothed, and the blotches rather larger than in the one figured, and red-purple in colour. The other is a beautiful variety of O. eximium, from O. c. apiculatum × armainvillierense, and has the rounder shape of the latter with a much increased size. It is circular, 3¾ inches across, beautifully crisped, white, with a slight rose tinge on the sepals, and a great chestnut brown blotch on each segment, much the same as in the seed parent, and forming a zone of colour. Mr. Roberts remarks that the plants are only of medium size, and the spikes were disbudded to three and two flowers respectively.

Two interesting Cypripediums have been sent from the collection of O. O. Wrigley, Esq., Bury, by Mr. E. Rogers. C. villosum giganteum × Buchanianum has yellow ground colour, with dark bands in the dorsal sepal and petals, and has thus retained some of the character of C. Druryi. C. villexul × Thompsonianum has very broad petals and lip, with much of the villosum character, and a round dorsal sepal, veined with brown on a green ground, a broad purple-brown median band, and a broad white margin. C. aureum Hyeanum × Thompsonianum is a large flower, with broad villosum-like petals, a pale green dorsal sepal, with numerous small purple dots, and a broad white margin. This flower has been open for about twelve weeks, which says much for the lasting quality of these useful plants.

A pretty yellow form of Odontoglossum Adrianæ has been sent from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, by Mr. E. W. Thompson. It came out of a batch of imported O. crispum, which contained also several plants of O. Hunnewellianum, the other parent. A curious freak of Cypripedium trigiense is also sent. It appeared at the top of a growth, almost without a stem. It consists of one sepal, situated below the lip, which is normal, and one erect petal, occupying the place of the dorsal sepal. A dried flower produced last year is also sent. This is one of three produced by a normal stem, and has the lateral sepal divided, and one half added to each petal, the combined organs being intermediate in shape and position. The other two flowers were normal. The plant seems to be in a curiously fluctuating condition.

Flowers of three beautiful Orchids, which were certified by the

Manchester Orchid Society on April 13th, are sent from the collection of Tom Worsley, Esq., Haslingden, by Mr. T. Wood. Miltonia vexillaria var. Worsleyi (F.-c. C.) is a large and very richly-coloured variety. Odontoglossum General-Townshend (F.-c. C.) is a well-shaped flower, with light purple blotches on a white ground. O. promerens Carter Place var. (A.M.), has the flowers well suffused with purple, leaving the apex and margins of the petals white.

Several beautiful flowers are sent from the collection of R. Ashworth, Esq., Ashlands, Newchurch, by Mr. W. Gilden. Odontoglossum cordatum aureum is the yellow form of the species, the usual brown markings having completely vanished. O. Pescatorei xanthotes is a beautiful white, having a deep yellow crest, and a little paler suffusion at the front and sides. O. crispum Black Dragon (crispum Black Prince × Pluto) is most like the seed parent, having a great blackish purple blotch on the petals, and the greater part of the sepals of the latter colour, while the front part of the lip is white. O. c. heliotropium × c. Black Prince has a light rosy ground, and pretty undulating shape, most like the former generally. A flower of O. c. Black Prince is also sent for comparison, and shows some unmistakable traces of O. Adrainæ influence. O. Herculaneum is a very fine thing, having very broad white sepals and petals, the former with a great red-brown blotch above the middle. The flower is of great substance, and has been out for six weeks. O. Jasper var. Masereelianum is regularly spotted with claret on a light rosy ground, and is a very charming form. O. James O'Brien has a yellow ground colour, and solid red-brown blotches on the sepals and lip. Odontioda Zenobia is a reddish-claret flower of good shape, with the apex of the lip white and some red markings near the apex. Two good forms of O. crispum are also sent, with Cochlioda vulcanica and two brilliant orange-scarlet forms of Sophronitis grandiflora. They form a very charming series, and afford evidence of excellent culture.

A promising seedling Cypripedium has been sent from the collection of J. Crombleholme, Esq., Clayton-le-Moors. Mr. Crombleholme remarks that it is a cross between C. aureum and C. Lathamianum, and has been named C. Louvanii. The flower has been sent to be painted, and was somewhat withered, but the prevailing colour seems to be light greenish yellow, and the shape good.

A fine plant of Odontoglossum platychilum is blooming in the Kew collection, bearing numerous spikes, three of which are three-flowered. The species was long known from the single plant in the collection of the late R. I. Measures, Esq., Camberwell, but at length an importation was obtained, and plants are often seen, though seldom in very vigorous condition. It is a native of Central America.

CATASETUM CHRISTYANUM.

IN my collection of Catasetums one has just bloomed which deserves to be known to collectors, but I can find no trace of anything like it in the works I have consulted. It was found in the Utinga forest, in the suburbs of the City of Para. The flowers, with the exception of the lip, are similar to C. Gnomus, of which I have a few varieties. The plant is of small habit, the pseudobulbs measuring only four inches long, and bearing four leaves, while C. Gnomus is a much larger plant. The flowers are four inches across; the sepals and petals are olive green, the former suffused and the latter spotted with reddish brown inside. The lip is pale green, spotted with reddish brown, and bordered with bristles all round, and the column is yellowish green, spotted with chocolate brown at the back. I am sending you a dried flower and a photograph taken when the plant was perfect.

J. SIMAO DA COSTA.

Balem de Para.

We believe the plant is Catasetum Christyanum, Rchb. f. (*Gard. Chron.*, 1882, i. p. 588), a species that flowered in the collection of Mr. Thomas Christy, Sydenham. It is said to have been received from the Upper Amazon, but the exact locality is not specified.—ED.].

RED CROSS SALE.—Fellows of the Royal Horticultural Society and others are appealed to for plants and bulbs, including Orchids, horticultural books, paintings, photographs, Japanese prints, cut flowers, and bouquets, to be sold by auction on June 28 and 29, to help the funds of the Red Cross Society. Offers should reach the Secretary of the R.H.S., Vincent Square, on or before May 27, in order that they may be duly entered in the Catalogue, which will be issued about June 17. The objects themselves must reach Vincent Square early in the day on Tuesday, June 27. Cut flowers will be received and sold on the second day. Admission will be by catalogue only, or of the auctioneers, to be obtained from Vincent Square, price 2s. 6d., profits arising from the catalogue to be handed to the proceeds of the sale.

RED CROSS SALE OF ORCHIDS.—On Friday, April 14, a sale of Orchids was held by Messrs. Protheroe & Morris, on behalf of Messrs. Armstrong & Brown, one half the proceeds to be handed to the Red Cross Fund. A lot of healthy seedling Cattleyas and Læliocattleyas were offered. A few choice things were purchased by Mr. J. Gurney Fowler, including Cattleya Mendelli var. Stuart Low, 42 guineas, and Brassocattleya Excelsior, 20 guineas. It is expected that a substantial sum will go to the Fund.

SOBRALIA CHARLESWORTHII AND S. RUCKERI.

AT the Temple Show held in 1910 a handsome Sobralia was exhibited by Messrs. Charlesworth & Co., Haywards Heath, under the name of S. Charlesworthii, to which a First-class Certificate was given. It was recorded as a handsome Colombian species, nearly allied to S. Ruckeri, and having rich rose-purple flowers, with a broad purple band round the lip, and a yellow crest (*O.R.*, xviii. p. 184). A little uncertainty was felt at the time as to its distinctness from S. Ruckeri, a species which Lindley regarded as identical with S. rosea, Pœpp. & Endl., but a re-examination of the materials, with the help of a fine, three-flowered inflorescence of S. Charlesworthii that was exhibited by Messrs. Charlesworth at the R.H.S. meeting held on April 11th, has thrown more light on the matter.

S. RUCKERI, Linden & Rchb., f., was collected by Schlim in the province of Ocana, at 5000-6000 feet elevation, and was described in 1854 (*Bonpl.*, 1854, p. 278) as an ally of S. rosea, Pœpp. and Endl. Lindley's Herbarium, fortunately, contains a specimen collected by Schlim in the same province, at 9000 feet (n. 32), on the ticket of which Schlim has written "Sobralia Ruckeri," and although not the original specimen (which is cited as n. 1253), its authenticity is not in doubt. There is also an unnamed specimen (n. 65), that was collected at 8500 feet in the province of Pamplona. Lindley named both these S. rosea, Pœpp. and Endl., and so cited them, with S. Ruckeri as a synonym (*Fol. Orch.*, Sobral. p. 3); but this does not stand the test of comparison, even in a dried state, for the shape of both the bracts and flowers are quite distinct, in shape, a fact that was recognised by Reichenbach when figuring S. Ruckeri (*Xen. Orch.*, i. p. 168, t. 42). There are two other figures of S. Ruckeri: *Warn. Sel. Orch.*, iii. t. 19, and *Gard. Chron.*, 1901, ii. pp. 66, 67, fig. 23, the latter prepared from a plant for which Sir Trevor Lawrence received an Award of Merit from the R.H.S. in July, 1901, flowers of which are preserved at Kew, and which are identical with those collected by Schlim. The original S. rosea, Pœpp. and Endl., is a Peruvian plant, which, so far as we can ascertain, has not yet appeared in cultivation.

S. CHARLESWORTHII has the general character of S. Ruckeri, but has much larger flowers; after being dried (so as to be in the same condition) they excel those of S. Ruckeri in diameter by 1¼ inches. In a fresh state they measure 3¼ inches long, the sepals being an inch broad and the petals 1¼ inches, and of a bright rose purple, while the broad, entire concave lip is intense purple round the margin, and has a broad, fleshy yellow band down the centre. In colour the two are very similar, and the question

whether the difference in size is a constant character must remain until further materials come to hand. There are several imperfectly-known species of this racemose section of the genus. R.A.R.

CATTLEYA LABIATA FROM CEARA.

THE remarks of Mr. Thomas Knight at page 61 of your February issue, anent the Cattleya described by me at page 30, call for a few other explanations, which I hasten to make. There is not the slightest doubt that the flower I referred to is of the labiata species, neither can there be any doubt about all the Orchid plants I obtained from Ceara being of the same family. On my way back from Rio, last month, I had occasion to see in Bahia some plants of the labiata group imported by a friend of mine from one of the leading Orchid dealers in England, and invoiced as C. Gaskelliana, from Venezuela. These, as well as some imported by my said friend from Ceara, had just burst into full bloom, and we were both astonished and agreeably surprised to note, on minute investigation, that both plants and flowers were absolutely alike.

C. labiata is to be found in all the hills in the rainy belt region of Pernambuco, Parahyba and Ceara, the last place, where they cease, being the Serra de Maranguape. Travelling eastward labiata can be found in almost every spot where moisture abounds, but coming westward from Ceara no Cattleyas are found again until at least 500 miles from the mouth of the Amazons. Here C. superba is found on many of the rivers, and C. Eldorado only on the Rio Negro and its neighbourhood. C. Harrisoniana is only to be found in the warmer portions of the hills around the Italiaya and Sao Paulo ranges and a portion of Minas Geraes and Rio Janeiro. Their pseudobulbs are taller—twice as tall as the tallest pseudobulbs of C. superba which comes from the Rio Madeira, and are considered the biggest of the genus.

You have already shown the impossibility of a natural crossing between plants found so many thousand miles apart, and I will not dwell on that point.

I hope this particular plant will flower again, and I shall take the liberty of sending you another dried flower and a photograph so that this doubtful Cattleya may be finally classified. J. SIMAO DA COSTA.

Belem do Para.

[Besides not growing together, C. labiata and C. Gaskelliana do not bloom quite at the same period, but we hope that further materials will suffice to clear the matter up.—ED.]

OBITUARY.

J. GURNEY FOWLER.—Orchidology has suffered a severe loss in the death, on April 24th, of Mr. J. Gurney Fowler, Treasurer of the Royal Horticultural Society and Chairman of the Orchid Committee, at the age of sixty years, and after a very short illness. A week before Mr. Fowler was in his usual health, but an attack of influenza, followed by bronchitis and inflammation of the lungs, resulted in heart failure, and he passed away suddenly at his residence, Brackenhurst, Pembury, on Monday night. For over twenty-two years the deceased has been an ardent Orchidist—it was in 1894 that our correspondence began, and we may recall that in March of that year he received a Silver Flora Medal from the R.H.S. for a large group of Oncidiums, Dendrobiums, &c., and another for a splendid specimen of Cattleya Trianæ. In October, 1896, he exhibited a magnificent specimen of Vanda Sanderiana, to which a Gold Medal was awarded, and which was figured as the frontispiece to our fourth volume. In 1898 he was elected a member of the Orchid Committee, and in 1902 became a Vice-chairman, and three years later was appointed Chairman, a position he held up to the time of his death. For many years Mr. Gurney Fowler

Fig. 17. THE LATE MR. J. GURNEY FOWLER.

resided at Glebelands, South Woodford, and the Glebelands collection soon became famous, sterling novelties being frequently acquired, while a beginning was soon made in the fascinating work of raising hybrids. Some two years ago the collection was moved to the clearer air of Pembury, near Tunbridge Wells, where a fine new range of houses had been erected, which we recently had the pleasure of seeing, and of which an account was given at pp. 74-76, 93-95 of our last two issues. He was a great lover of Orchids, and a very regular exhibitor at the R.H.S. meetings, where many notable things were staged from time to time, and in particular we remember the magnificent specimen of Odontoglossum Georgius Rex to which a Silver Lindley Medal and a First-class Certificate were given at the last Holland House Show. Besides his long services to the Royal Horticultural Society, we may recall that he was Chairman of the Board of Directors of the Great International Exhibition held at the Royal Hospital, Chelsea, in 1912, a position entailing a vast amount of work. Mr. Gurney Fowler found in his Orchids a delightful relaxation from the cares of business, as we know by a pleasant day spent in his company at Brackenhurst, and we shall not soon forget the magnificent display of Dendrobiums—purple, white, and yellow—in the Corridor there; also his familiarity with all the details of his fine collection, and the careful way in which everything was rccorded. Activity was apparent on every hand, and much was in progress in the hybridising department. We may add that only ten days before his death several choice Orchids were acquired at a Red Cross Sale. Mr. Fowler was a bachelor. His name is commemorated in Cattleya Fowleri (Leopoldii × Hardyana), Brassocatlælia Fowleri (Bl. Gratrixiæ × C. Schrœderæ), and Odontoglossum Fowlerianum (cirrhosum × Rossii). Among notable plants raised in the collection may be mentioned Cymbidium glebelandense (insigne × Schrœderi) and C. Niobe (tigrinum × Veitchii). For the loan of the accompanying block we are indebted to the courtesy of the Editor of the *Gardeners' Chronicle*.

GIFT OF BOOKS TO THE LINDLEY LIBRARY.—A magnificent collection of books from the library of the late Sir Trevor Lawrence, Bart., has been presented to the Lindley Library. The volumes are beautifully bound in half calf, and form a valuable acquisition. They bear a book plate inscribed: "Presented to the Lindley Library of the Royal Horticultural Society in memory of Sir J. J. Trevor Lawrence, K.C.V.O., V.M.H., President of the Society from 1885 to 1913, by his children, 1916." Among the Orchid books may be mentioned, T. Moore's Illustrations of Orchidaceous Plants; R. Warner's Select Orchidaceous Plants; Lindenia, Iconographie des Orchidees, 17 volumes; L'Orchidophile, 10 volumes; and Journal des Orchidees, 7 volumes.

CALENDAR OF OPERATIONS FOR MAY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

ALTHOUGH plants in general are not so far advanced in growth as usual at this season, owing to the dull cold weather recently experienced, it will be found that they are active as regards making roots and growth. The conditions now must be generous and conducive to the production of strong and healthy growths, whilst air should be admitted on all favourable occasions to consolidate the same as it is made.

TEMPERATURES.—The summer temperatures may now be maintained in all departments. When the outside conditions are mild and genial, efforts should be made to husband the heat and light of the sun in every way; yet care must be taken that plants do not suffer from scorching. Plants inured to the maximum amount of light, consistent with reason, will always produce better and more flowers than those grown under more shady conditions, because they are better matured. The following figures are safe and reliable for the temperatures of the different departments during the growing season:—

East Indian house: 65° to 70°.

Cattleya house: 60° to 65°.

Mexican and Cool Intermediate house, about 60°.

Cool house: 50° to 55°, or as cool as possible.

These figures are only given as a guide, for I am well aware that it is impossible to maintain a house at any particular degree under all conditions; yet care should be taken to avoid all undue fluctuations.

ATMOSPHERIC MOISTURE may now be used more liberally, and with the increased amount of ventilation no harm is likely to accrue, provided the temperatures are maintained. A hot, dry atmosphere, as well as a wet, cold one are extremes to be avoided, and both are dangerous.

VENTILATION.—The ventilation of the houses will require much attention during hot and dry weather, and especially in those districts where changes are rapid. If used in excess, the humidity of the atmosphere is lost, and draughts, if admitted, may do irreparable harm.

WATERING.—Last month's advice may be followed right through the growing season, but as this is the chief item in successful cultivation, care must be taken that no plant is kept in a saturated condition. The compost should be allowed to become moderately dry between each application of water to the roots.

SHADING also must have attention, and the blinds should only be used when necessary, for plants grown in dense shade make soft and immature growth. On the other hand, the sun must not be allowed to shine on the

plants for any length of time or harm may accrue, especially to soft-leaved, shade-loving plants. These may seem small matters, but if the best results are to be attained they are essential. It is in small matters that many go astray.

CYMBIDIUMS, at the present day, include some of the most beautiful and easily-grown Orchids, the majority of which produce stately spikes of showy flowers, which adapt themselves to almost every purpose. They flower mostly in the early spring, although not all at one season, and all may practically be treated from one standpoint. As they resent root disturbance, repotting should only be done when the compost is exhausted, or when the plants are too large for the receptacles. They are not exacting in their requirements, and a cool Intermediate house makes admirable quarters for them, while a similar compost to that used for the green-leaved Cypripediums is suitable. The best time to repot both species and hybrids is just as the young growths are about to produce new roots. The usual caution is necessary in the application of water to the newly-potted plants until the thick, fleshy roots get hold of the compost, as they soon decay from an excess of water at this stage.

PHALÆNOPSIS.—When these delightful Orchids are grown, there is generally a house set apart for them, although at times one comes across many well-cultivated specimens grown in an ordinary plant stove. The greater number will now have passed out of flower, and commenced to make new leaves and roots. The species P. Schilleriana, amabilis, Aphrodite, Saunderiana, and one or two others are generally included when a collection of these plants is formed, and to which these remarks refer. They may be grown in baskets, ordinary flower pots, pans, or cylinders, whichever is preferred. Personally, I prefer ordinary Orchid pans. Whichever receptacle is used it must be well-drained, crocks being placed quite three parts of the way up the receptacle, and a compost suitable for them is made up of equal portions of clean osmunda fibre and live sphagnum moss, the fibre cut fine, and the two thoroughly mixed. The plants should be afforded a shady position in the warmest house, and a humid atmosphere provided for them during their season of growth.

CATTLEYAS AND ALLIED GENERA.—At the present time there are many of this large and beautiful family, both species and hybrids, pushing up their flowers within the sheathes, and it is advisable that plants in that condition should be thoroughly cleansed before the flowers push out. When in bloom the plants may be placed in drier and cooler quarters, where the flowers will last longer in perfection, and enable the visitor to avoid the heat and humidity of the growing houses. The potting of the plants, as they go out of flower and begin to push roots at the base of the pseudo-bulbs, should have attention whenever it becomes necessary. The compost

of the newly-potted plants should be kept on the dry side until the new roots have freely entered the new material.

CYPRIPEDIUMS.—Late-flowering plants of the winter-blooming section that are in need of new material at the roots should have immediate attention, as the flowers are removed, for if left to a later period they often fail to root in a satisfactory manner. The summer-flowering section, which comprises such species as C. Lawrenceanum, Curtisii, niveum, Godefroyæ, bellatulum, &c., with their numerous hybrids, will be pushing up their flower spikes, and should be placed in their flowering quarters, where no water from the syringe may reach them.

DENDROBIUMS.—Plants of D. thyrsiflorum, densiflorum, Farmeri, chrysotoxum, fimbriatum, and others of the racemose section will now be showing their flower buds, and should be afforded more water at the roots and placed in a slightly higher temperature, which will assist them to develop and expand their flowers. D. formosum and D. Phalænopsis will now be pushing new growths and roots, and may have new compost afforded them should they be in need of it. It is advisable to grow these plants in as small receptacles as possible, as, being feeble rooters, they make more progress when the compost dries quickly. Any clean fibre, mixed with an equal portion of sphagnum moss, makes a suitable compost. These plants revel in heat, light, and moisture whilst making their growths, with a long resting season after flowering. D. bigibbum, superbiens, Goldei, and others of the Australian and New Guinea Dendrobiums, succeed under the same conditions, but their requirements vary according to their season of flowering. D. infundibulum, Jamesianum, and others of the Nigro-hirsute section succeed in a cool Intermediate temperature.

ODONTOGLOSSUMS.—Such plants as O. grande, Insleayi, and Williamsianum, when their growths are fairly started, and before they push roots should, if necessary, be repotted. They require a slightly higher temperature than the Cool house. Plants of O. Rossii and its hybrids, with O. Cervantesii, O. Humeanum, and O. Œrstedii, that have recently passed out of flower, may also have attention when their young growths attain the desired condition. They thrive when grown in shallow pans, suspended close to the roof glass of the Cool house. These small plants easily suffer from an excess of water at the roots during their resting season.

SOPHRONITIS GRANDIFLORA is another inmate of the Cool house which may now have attention as regards repotting. Plenty of drainage must be provided, and the usual Cattleya compost is the most suitable.

SOBRALIAS, and other terrestrial Orchids that are showing their flower spikes, and others that are in full growth, and their pots full of roots, will benefit by an occasional watering with weak liquid manure. This must be applied in a weak state, or it may do harm, even to strong terrestrial Orchids.

ZYGOPETALUMS AND ALLIES.—Here we have a most interesting class of plants, including Bollea, Pescatorea, Warscewiczella, Huntleya, Promenæa, Batemannia, and Kerfersteinia. *Z.* Mackayi may be regarded as a typical example, and is the best known, but the majority do not resemble it in the least. Most of the others, except Promenæa, possess no pseudobulbs. There are several *Z*ygopetalums, including hybrids, which are either in bloom or just past their flowering period, and any that are about to produce roots from the partially-made pseudobulbs may have new rooting material afforded them, should they be in need of it. *Z*ygopetalums succeed in a humid temperature of about 60°, whilst Promenæas succeed in shallow pans suspended in a shady cool part of the Odontoglossum house. The quaint-flowered and really wonderful Chrondrorhyncha Chestertonii succeeds under the same treatment. Do we, as growers ever realise the marvellous character of these works of nature? I think not, and surely there are no more wonderful things in the whole universe than the flowers of many plants which pass regularly through our hands, for example, the sensitive lip of Masdevallia muscosa!

GENERAL REMARKS.—During the present month many will again pay their annual homage to the Mecca of all Orchid lovers. Many others will be absent, engaged in a struggle of a different character; but let us hope that their work in that sphere may speedily come to an end, and that they may soon return to the peaceful work of horticulture, of which Orchid-growing forms no mean part.

PLEIONE DELAVAYI, Rolfe.—This beautiful Chinese Pleione has now bloomed in cultivation, a flower having been received in the collection of H. J. Elwes, Esq., Colesborne, Glos. Mr. Elwes states that the plant was sent home by Mr. G. Forest. The species was originally discovered in the high mountain region of Yunnan, and was described from dried specimens. It has much of the general character and appearance of the now well-known P. yunnanensis, but has longer segments, which measure as much as 2¼ inches long, and the petals not exceeding the sepals in length. The colour is bright rose-purple, with some red-brown markings on the well-fringed lip, on the disc of which are five crenulate keels. The pseudobulbs are subglobose, smooth, dark green, and nearly an inch long. It is an interesting addition to the genus, and there are two other Chinese species which, so far as we know, have not yet appeared in cultivation, namely, P. bulbocodioides and P. grandiflora. It may be added that a revision of the genus appeared in an earlier volume (*O.R.*, xi. pp. 289-292), and that two or three other species have since been described, one of which, P. formosana, Hayata, was brought home alive, and has flowered both with Mr. Elwes and at Kew. R.A.R.

HYBRID OPHRYSES.

THE flowering of the first artificially-raised Ophrys, in the collection of M. Fernand Denis, Balaruc les Bains, France (*O.R.*, xx. p. 199; xxii. p. 100) was an interesting event, and now M. Denis has raised four others, three primary and one secondary. The first was from O. tenthredinifera × aranifera, and proved identical with a wild hybrid, O. Grampinii, Cortesi. This was crossed with O. lutea major, and the resulting hybrid will be described by Dr. G. Keller as O. Denisii. M. Denis thinks it the most beautiful in the genus, as it combines the colours of the three parent species, and has flowers of larger size. The three others are O. lutea major × Speculum, O. Scolopax × Speculum, and O. Speculum × bombyliflora. The sending of flowers from France at the present time is difficult, owing to the war, but M. Denis kindly promises them next year. He writes: "I am of your opinion that many more hybrids of Ophrys exist in a wild state than is generally admitted, and that several of the so-called doubtful species are natural hybrids. I have this year germinations of Aceras hircina with Ophrys, and of Serapias elongata with Ophrys, but I do not anticipate obtaining hybrids, for on several occasions such crosses have only reproduced the mother plant; among others this year I have O. lutea, O. Speculum, and O. Bertolonii."

This possibly explains a matter which has long puzzled us, namely, the apparent absence of hybrids between Ophrys and the allied genera, for, although combinations are known between Orchis and the genera Serapias, Gymnadenia, and Platanthera, also between Gymnadenia and Platanthera, and Gymnadenia and Nigritella, yet no generic cross with Ophrys, so far as we can find, has yet been recorded. We congratulate M. Denis on his success, and hope that he may be able to include the cross between O. aranifera and O. Arachnites among his experiments, for we have for many years believed that the series of so-called purple varieties of O. aranifera figured by Barla are natural hybrids between that species and O. Arachnites, or of some other closely allied purple-flowered species.

M. Denis remarks that the cultivation of Ophryses in suitable soil is not difficult, but their germination should not be attempted without their natural accompaniment of grasses, &c. He has never succeeded in raising them on canvas or sawdust. We believe that they grow naturally on a calcareous soil, hence the necessity of an admixture of chalk or limestone in the compost, and it is interesting to record that plants of O. aranifera, the well-known Spider Orchid, have flowered for four years in succession on the rockwork at Kew, in a bed containing an admixture of limestone.

Three are in bloom at the present moment, and others are not blooming this year. A group of this interesting plant is shown in the annexed figure, the block having been kindly lent by the Editor of *The Garden*. The flowers are green, with brown markings on the lip.

Some interesting remarks on the behaviour of these plants in a wild state are given in a recent issue of *The Garden* (p. 184), by Mr. E. H. Woodall, under the heading of Notes from the Riviera. He remarks: "There are some ingenious theories about the seeding of Ophrys, and it is said that a small insect is required to fertilise these quaint blooms, which so mimic a bee, or a drone, a fly, or even a little looking glass, that one is lost in conjecture as to the purpose of these impersonations. In my valley, which has been left to Nature for some fifty years at least, there are many

Fig. 28. OPHRYS ARANIFERA (the Spider Orchid).

of these quaint flowers, which year by year puzzle and delight me. Which are species, which varieties, why do they appear in quantity for one, two, or three years, perhaps, and then disappear suddenly? either to turn up some hundreds of feet away, or to remain dormant for years, and then appear again in quantity. Scarcely ever do I find a fat, full capsule of seed, yet evidently they do propagate themselves far more successfully than I can understand. The spring before the war I found a nice group of a very pretty Ophrys, more like the bee Orchis than anything else, but pinker and creamier in the sepals, and lighter in the lip than that well-known species, which does not flower here till the month of May, while this flowered in March. This year I went to look for my friend towards the end of March, and could only find a miserable remnant of one or two spikes, and supposed that either it was over or that it had not reappeared. Then came a week of deluging rain when nobody passed that way. On the first fine day, however, I took some quick-eyed friends down to see what had happened, and on a plateau some distance off—say, ten yards or twelve yards—one of my friends exclaimed: 'I never saw such quantities of Bee Orchids in all my life!' and there I found in *quantities* this creamy white and pink sepalled Ophrys, with the velvety bee-like lip, but red rather than brown in colour. Ophrys Arachnites, with its green sepals and petals and black-brown lip was there also in plenty, but this was in groups of six and ten, enough to make patches of colour. In sixteen years I have never once seen it before, and yet this year it is abundant. It can hardly be a hybrid, as no bee Orchis will be out for some weeks; and yet it seems to be too distinct to be a variety of Arachnites, which is much taller and more vigorous; so I hope someone may give me a clue."

We should much like to be favoured with specimens, for we suspect some mistake in the last-mentioned name, O. Arachnites being one of the purple-flowered species. The remarks apparently refer to O. aranifera, which Mr. Woodall correctly described in an interesting note at pp. 263, 264 of our seventeenth volume. R.A.R.

MAXILLARIA PICTA TWIN-FLOWERED.—A twin-flowered scape of Maxillaria picta has appeared in the Kew collection, a thing we do not remember to have noticed before; at all eveents the scapes are very persistently one-flowered in this genus. Occasional instances have been recorded in the genus Lycaste, while among normally single-flowered Cypripediums twin scapes are common, and our pages have contained figures of three-flowered scapes of C. Cymatodes (viii. p. 184) and C. Boltonii (xxi. p. 345). Similar cases are generally regarded as evidence of good culture. Maxillaria picta is a very interesting old garden plant, a native of Brazil, whose history was given at page 347 of our last volume.—R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 11th, and brought together a fine display of Orchids, the awards consisting of five Medals, one First-class Certificate, four Awards of Merit, and one Preliminary Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), James O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., R. A. Rolfe, J. W. Bolton, R. G. Thwaites, P. Ralli, F. M. Ogilvie, E. R. Ashton, T. Armstrong, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, A. Dye, W. H. White, S. W. Flory, C. J. Lucas, G. Wilson, R. B. White, and C. Cookson.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA BRITANNIA BLENHEIM VAR. (Lc. Canhamiana alba × C. Warscewiczii Frau Melanie Beyrodt).—A very beautiful variety, bearing a spike of three large white flowers, with the throat of the lip yellow, and the front lobe deep purple, with a broad white margin. Exhibited by His Grace The Duke of Marlborough, Blenheim, Woodstock (gr. Mr. J. Smith).

AWARDS OF MERIT.

CYPRIPEDIUM WILLIAM-LLOYD VAR. NEGRO (bellatulum × Swanianum).—A very richly-coloured flower, and of excellent shape, the petals and lip being rich claret-purple, and the dorsal sepal shading off to rose and blush at the margin. Exhibited by Messrs. Armstrong & Brown.

ODONTIODA JOAN BRINDWIR VAR. (Oda. Charlesworthii × Odm. armainvillierense. A large and richly-coloured variety, bright magenta-rose, with a yellow crest. Exhibited by Dr. Miguel Lacroze, Roehampton (gr. Mr. Cresswell).

ODONTIODA PRINCE-ALBERT (Oda. Zephyr × Odm. percultum).—A large and richly-coloured form, and of excellent shape, the colour Indian red, shaded with rose, and the lip mottled with rose and with a yellow crest. Exhibited by Messrs. Flory & Black.

ODONTOGLOSSUM ILLUSTRISSIMUM SHRUBBERY VAR. (Lambeauianum × armainvillierense).—A large and finely-shaped form, the flowers bronzy claret in shade, tipped with blush, and the lip white with purple blotches in front of the yellow crest.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM CRISPUM GENERAL PETAIN.—A perfectly-shaped flower, bearing a large reddish purple blotch on the sepals and petals. Exhibited by Messrs. Armstrong & Brown.

OTHER EXHIBITS.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent Odontoglossum Cloth of Gold (amabile × Wilckeanum), and Cymbidium Niobe (Veitchii × tigrinum), a very distinct hybrid, of dwarf habit, and bearing two arching spikes with numerous flowers, the sepals and petals light green, and the lip white, tinged with pink and with a few pink spots in front.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), sent well-flowered plants of Polystachya paniculata, Cœlogyne lactea, Eria ferruginea, Odontioda Lady Colman and Læliocattleya Isabel Sander.

C. Ingram, Esq., Elstead House, Godalming, sent Odontioda Rosalie (C. Nœtzliana × Odontioda Thwaitesii), with two scarlet-red flowers, and D. Melpomene Elstead var.

Dr. Miguel Lacroze, Bryndwir, Roehampton Lane (gr. Mr. Creswell), sent Odontioda Clotilde Bryndwir var., O. Buenos-Ayres (Odm. × Aireworth × Oda. Bradshawiæ), a well-shaped claret-red flower with lilac margin, and Odontoglossum crispum nigrescens, of the Black Prince type.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. W. Balmforth), showed two well-grown plants of Odontoglossum Pescatorei, Duchess of Westminster, a very prettily-spotted variety.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), showed Odontoglossum crispum Perfection, and O. luminosum (Fascinator × armainvillierense), white with a zone of red-purple spots.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including Angræcum citratum with five racemes, Odontoglossum Jasper, two beautiful examples of O. crispum xanthotes, Miltonia Charlesworthii and M. Bleuana, Sophrocatlælia Meuse (Scl. Marathon × Lc. callistoglossa), a fine thing with lilac rose sepals and petals and magenta-crimson lip, with a yellow throat, a cut spike of the handsome Sobralia Charlesworthii, and a number of brilliant Odontiodas (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a showy group, including a fine example of Cypripedium aureum virginale with nine flowers, which opened before Christmas, the pretty C. Dowlingianum, Dendrobium Brymerianum and atrosanguineum, Vanda cœrulescens, Oncidium concolor, a good Epiphronitis Veitchii, Sophronitis grandiflora, several well-flowered Masdevallias, Odontoglossums, and other plants of the season (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged an excellent group, including examples of Cymbidium Gottianum, Pauwelsii, and Schlegelii, some brilliant Odontoglossums and Odontiodas, Oncidium McBeanianum, some good Cattleyas, Læliocattleyas and others (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including

several good Cattleya Schrœderæ, several brilliant Odontiodas, including O. Charlesworthii with five side branches, an altogether unusual character, a fine Odontoglossum polyxanthum, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including a fine plant of Lycaste Skinneri Mrs. G. Hamilton Smith, the striking Cœlogyne Lawrenceana, a well-flowered Plurothallis gelida, Odontoglossums, Sophronitis grandiflora, &c. (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a few good seedlings, including Odontoglossum promerens Orchidhurst var. and O. exultans (crispum × excellens).

Mr. Harry Dixon, Wandsworth, sent a few good Odontoglossums and Odontiodas, Cypripedium Maudiæ, Cattleya intermedia, and others.

Messrs. Flory & Black, Slough, sent good forms of Dendrobium Thwaitesiæ and D. chessingtonense, and a few good Læliocattleyas and Odontoglossums, a seedling O. crispum being very promising.

Messrs. Stuart Low & Co., Jarvisbrook, staged an interesting group, including examples of Vanda Parishii and var. Marriottiana, V. cœrulescens and var. Boxallii, Renanthera Imschootiana, Dendrobium atroviolaceum, Brymerianum, a fine D. Jamesianum, Schomburgkia undulata, and others.

Mr. C. F. Waters, Balcombe, sent a few good plants of Odontoglossum crispum and others.

On April 18th another meeting was held in connection with the Special Show of Narcissi, but very few Orchids put in an appearance, and the only award made was one Preliminary Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the chair), J. O'Brien (hon. sec.), W. H. White, T. Armstrong, P. Ralli, and R. A. Rolfe.

PRELIMINARY COMMENDATION.

ODONTIODA BRACKENHURST (Oda. Charlesworthii × Odm. eximium).—A crimson-red flower, with a broad lip of brighter colour, on which were a few white markings. Exhibited by Messrs. Armstrong & Brown.

OTHER EXHIBITS.

H. J. Elwes, Colesborne, Gloucestershire, sent a fine spike of Phaius Ashworthianus (Phaiocymbidium chardwarense), having bright yellow flowers with red-brown markings on the lip.

E. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent a plant of Lælia Flavina (flava × Iona), bearing a spike of four flowers.

Messrs. Armstrong & Brown, Tunbridge Wells, showed Odontoglossum promerens xanthotes (eximium xanthotes × crispum xanthotes), a promising white, with a few deep yellow spots on the lip, O. Erzeroum (Fascinator × crispum Luciani), a finely-shaped flower, with large red-brown blotches, and a fine plant of Dendrobium fusiforme with ten racemes.

As an illustration of the value of cut Orchids for decorative purposes we may mention that in the body of the Hall Messrs. R. F. Felton staged a group of five vases filled with spikes of Cymbidium Pauwelsii, and one or two others, with a few Odontiodas and blotched Odontoglossums. They were set up with Eucalyptus foliage and Asparagus plumosus, and produced a very graceful effect.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on March 16th the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. J. Cypher, J. Evans, A. R. Handley, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.). Mr. D. A. Cowan was invited to sit.

FIRST-CLASS CERTIFICATES.

Læliocattleya luminosa aurea Haddon House var. (L. tenebrosa Walton Grange var. × C. Dowiana aurea), a fine flower of good shape, sepals and petals golden yellow, with intense purple lip; from P. Smith, Esq.

Cymbidium Alexanderi var. Linda (eburneo-Lowianuam × insigne), a magnificent flower of good shape and colour; from Messrs. J. & A. McBean.

Lycaste Skinneri var. Mrs. G. Hamilton Smith, a well-set flower of good colour; from Messrs. Sander & Sons.

AWARDS OF MERIT.

Læliocattleya luminosa aurea Ashlands var.; Lc. Beatrice var. nobilior (Lc. callistoglossa × C. Schrœderæ); and Odontioda illustris Ashlands var. (Oda. Charlesworthii × Odm. illustrissimum); from R. Ashworth, Esq.

Cymbidium Schlegelii aureum (Wiganianum × insigne), and C. Alexanderi Rex (eburneo-Lowianum × insigne); from Messrs. J. & A. McBean.

Brassocatlælia Alwyn-Harrison (? × B. Digbyana); from Mr. Alwyn-Harrison.

AWARDS OF APPRECIATION.

Odontioda Evelyn and O. Mary Hindle; from Tom Worsley, Esq.

Miltonia Hyeana var. Sirius; from R. Ashworth, Esq.

Odontocidium Juno Harrison's var. (Oncidium tigrinum × Odm. ramosissimum); from Mr. Alwyn-Harrison.

CULTURAL CERTIFICATE.

Mr. William Coupe (gr. to John Hartley, Esq.), for Lycaste Skinneri alba.

OTHER EXHIBITS.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine miscellaneous group.

Large Silver Medals were awarded to Tom Worsley, Esq., Haslingden, (gr. Mr. T. Wood); Messrs. Cypher & Sons, Cheltenham; Messrs. J. & A. McBean, Cooksbridge; and Mr. Alwyn Harrison, Redbourn, Herts., for fine miscellaneous groups.

Interesting exhibits were also staged by Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); John Hartley, Esq., Morley (gr. Mr. W. Coupe); Messrs. Sander & Sons, St. Albans; Messrs. A. J. Keeling & Sons, Bradford; and Mr. Shackleton, Bradford.

At the meeting held on March 30th the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum armainvillierense album The Premier, a noble flower, and O. crispum var. Laura, a huge white flower, over four inches across, of good shape and texture; from John Hartley, Esq.

Odontoglossum illustrissimum var. Evelyn Worsley, a well-shaped, evenly marked flower; from Tom Worsley, Esq.

Cymbidium Alexanderi var. mellifluum (eburneo-Lowianum × insigne), a large cream-white flower, nicely marked on the lip; from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Cypripedium Hazeldene (insigne Harefield Hall var. × Hindeanum); O. The Don (bellatulum × fulshawense); C. Marcella (Leeanum giganteum × Drury-vill.); Odontioda Joan var. Golden Dawn, and Carter Place var., and Odontoglossum excellens Carter Place var.; from Tom Worsley, Esq.

Brassocatlælia Joan Marlfield var. (C. Octave-Doin × Bl. Mrs. Gratrix); from R. Ashworth, Esq.

Odontioda Joan The Knowle var.; from John Hartley, Esq.

AWARD OF APPRECIATION.

Odontoglossum Richmond (Marie × Mabel Whiteley); from Tom Worsley, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers, gr. to O. O. Wrigley, Esq., for a well-flowered plant of Eulophiella Elizabethæ.

Silver-gilt Medals was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for fine general groups.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), for a brilliant group of Lycaste Skinneri varieties, with some good Dendrobiums and others, including the rare Miltonia Warscewiczii xanthina.

A Large Silver Medal was awarded to Messrs. J. & A. McBean, Cooksbridge, for a fine group, in which Cymbidiums were particularly well represented.

A Bronze Medal was awarded to F. A. Hindley, Esq., Bradford, for a group of Cypripediums, Lycaste cruenta and Dendrobium nobile virginale.

Interesting exhibits were also sent by John Hartley, Esq., Morley (gr. Mr. W. Coupe) (see awards); Messrs. Keeling & Sons, Bradford, and Mr. W. Shackleton, Highfield, Bradford.

At the meeting held on April 13th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, A. J. Ellwood, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Alport Emperor, a large white flower, of good shape and substance; Dendrobium Thwaitesiæ West Point var., with very fine flowers, four inches across; Odontioda General Townshend, a round, yellow flower, with even brown blotches; from S. Gratrix, Esq.

Odontoglossum General Townshend, a large, round, heavily blotched flower, the markings being very even and of a light purple shade; Miltonia vexillaria var. Worsleyi, a most brilliantly-coloured flower: from Tom Worsley, Esq.

Odontoglossum crispum xanthotes var. Cloth of Gold, a large flower of good form, with bright golden markings; from Mrs. Gratrix.

Oncidium McBeanianum (superbiens × macranthum), a fine flower, showing distinctly the parentage; from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Cypripedium His Majesty (Pollettianum × Germaine Opoix), C. memoria Alma Gevaert (Lawrenceanum × Maudiæ), and Odontoglossum promerens Carter Place var.; from Tom Worsley, Esq.

Cypripedium Louvain (aureum × Lathamianum); from the Rev. J. Crombleholme.

Odontoglossum ardentissimum Haddon House var.; from P. Smith, Esq.

Lycaste Imschootiana aurea (cruenta × Skinneri); from A. J. Keeling & Sons.

CULTURAL CERTIFICATE.

To Mr. Findlow, gr. to A. J. Oakshott, Esq., Bidston for a fine specimen of Odontioda Bradshawiæ, with two spikes carrying 84 flowers.

Silver-gilt Medals were awarded to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), and to Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups.

Silver Medals were awarded to Messrs. Charlesworth & Co., Haywards Heath, and to Messrs. J. & A. McBean, Cooksbridge, for fine groups.

Interesting exhibits were also sent by S. Gratrix, Esq., Whalley Range (gr. Mr. Jamieson); Mrs. S. Gratrix; P. Smith, Esq., Ashton-on-Mersey

(gr. Mr. E. Thompson); the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall); A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); Mr. W. Shackleton, Highfield, Bradford, and Messrs. A. J. Keeling & Sons, Bradford, some of which are mentioned in the Award List.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during May, on the 2nd and 16th (not 21st), when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Great Spring Show will be held in the gardens of the Royal Hospital, Chelsea, on Tuesday, Wednesday, and Thursday, May 23rd to 25th. The Show will be held in a series of large Marques, and, as mentioned at page 111, the groups are to be smaller than usual, being limited to an area of 120 square feet, with a twenty-feet frontage. Judging commences at 10 a.m., and the Orchid Committee will assemble at the Committee tent at 10.30 a.m. Class 1 is devoted to Orchids, and Silver Cups and Medals will be awarded according to merit. The Davidson Annual Cup is on this occasion offered for the best Odontoglossum crispum. The Show will remain open on the first two days until 8 p.m., and on the third day until 6 p.m.

The Manchester and North of England Orchid Society will hold its last meeting of the Society's year at the Coal Exchange, Manchester, on May 11th. The Annual General Meeting will be held in the afternoon of the same day. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

J. de C.—Probably Catasetum phasma, Rchb. f., a Brazilian species, said to be allied to C. Gnomus, but only known from the original description.

E.W.T.—Odontoglossum Adrianæ, a natural hybrid between O. crispum and O. Hunnewellianum, which grow together in the district from which the newer importations of O. crispum come. Plants of O. Hunnewellianum are often found, as in the present case.

Received with thanks.—W.E.G.; F.B.; J. de C.

J.W.—Gongora bufonia, Lindl.

H.B.—The rule is that names of generic hybrids are to be written without secondary capitals or hyphens.

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ORCHIDS AT ASHSTEAD PARK.

AN interesting collection of Orchids which we have recently had the pleasure of seeing is that of Pantia Ralli, Esq., Ashtead Park, Surrey, which dates back for about 25 years. When the place came into Mr. Ralli's possession it contained a few Orchids, which soon grew into a good collection of the ordinary species and varieties. During the last six or seven years, however, the place has been revolutionised, many of the more ordinary things having been replaced by the best hybrids and modern varieties, while much attention has been paid to the fascinating work of raising seedlings, which is being carried on with great success—in fact we saw seedlings in every stage, including a number of interesting things in bloom.

Three ranges are devoted to Orchids, each about eighty feet long, and these are divided into nine houses, while a few special things are grown elsewhere. The houses are built upon the modern system, with lath roller blinds, and top and bottom ventilators, which are easily and conveniently worked from the inside by means of levers. The heating arrangements are ample, and the paths run through the centre, the plants standing upon side stages, while others are suspended from the roof by means of wires running along the sides of the paths. Earth floors with iron gratings along the pathways provide an ample supply of atmospheric moisture.

We first entered the range of Odontoglossum houses, and found many features of interest, some excellent things being in bloom, while many others were throwing up sturdy spikes. Among those noted were Odontoglossum crispum Hilda, a beautiful white, O. c. Raymond Crawshay, bearing a spike of fourteen rosy flowers blotched with cinnamon, O. Hyeanum with ten flowers, O. Phœbe, O. Boadicea (armainvillierense × triumphans), O. Ernestii with two panicles, O. eximium with five side branches, and several very diverse forms of O. Farnesii (Rolfeæ × Crawshayanum). One had yellow sepals and petals blotched with brown, and a very large white lip with small purple spots at the base; another had brown sepals and petals tipped with yellow, and the apex of the lip white, and a third had much of the Crawshayanum character in the sepals and

petals and of Rolfeæ in the lip. Others were in bud, and all came out of the same seed pod. A pretty little plant of O. Œrstedii bore seven flowers, one of which has been fertilised with Odontioda.

The Odontiodas were a brilliant series, including good forms of O. Bradshawiæ, O. Lutetia, O. keighleyensis var. Firefly, a very dark scarlet, O. illustris, bearing a spike of sixteen crimson flowers with markings much like Odontoglossum Rolfeæ on the lip, O. Diana with twenty-seven scarlet flowers, with O. Brunette and O. Lambeauiana in bud.

Among Odontoglossums not in bloom were pointed out a nice plant of O. crispum Oakfield Sunrise, O. c. xanthotes, and the beautiful yellow O. c. aureum, Canary, Golden Queen, Laburnum, Holdenii, and O. crispo-Wiganianum, a class of which Mr. Ralli is extremely fond. There were also two Oncidioda Cooksoniæ.

The seedlings were particularly interesting, and besides a batch of some 120 in tiny pots there were some of larger size and others germinating on the pots of established plants. We cannot enumerate them, but a batch of O. percultum × O. crispum Oakfield Sunrise is being watched with interest, to see how far the abnormal character of the latter will be reproduced. About a dozen Odontoglossum pods were maturing, and we noted seedlings of Cymbidium grandiflorum × Wiganianum. There were also seedlings from Disa grandiflora self-fertilised, with a few established plants showing for flower, and a nice lot of D. Luna in flower and spike.

Many plants of Sophronitis grandiflora were suspended here, and two plants with eleven and twenty flowers formed a bright little picture. A plant of the yellow S. g. Lowii was not in bloom, and it will be curious to see what the effect of hybridising it will be. Miltonia vexillaria memoria G. D. Owen bore four beautiful flowers, and other choice forms made a bright display.

In an Intermediate house were some good Miltonia vexillaria in bloom, including the pretty M. v. chelsiensis, and Epidendrum radicans, while plants of Miltonioda Harwoodii, Odontocidium Edwardatum, Odonto-glossum Aliciæ and some Odontoglossum seedlings were pointed out.

Passing into the Warmer divisions we noted the same healthy and vigorous condition of the inmates, and it was remarked that a great improvement was observable when the old high span-roofed structure was replaced by smaller houses, in which the plants can be placed better up to the light. Here again we can only give a selection of the things noted, but it is remarked that Mr. Ralli is particularly fond of yellow Orchids, and among those pointed out were fine plants of Læliocattleya Trimyra and Lc. Smilax var. Prince of Orange from the celebrated Burford collection, also Lc. Drapsiana primulina, Lc. Thyone var. Bonnie, and Lc. Cupid, a pretty hybrid raised at Ashtead Park.

The Cattleyas and allies were in thriving condition, and among those in bloom were several good Cattleya Mossiæ, one of them being marked by the immense size of the flowers and another by the very richly-coloured lip, a nice example of C. Dusseldorfii Undine, C. citrina, several good forms of Lælia purpurata, a promising batch of Læliocattleya Ganymede × Lælia tenebrosa just beginning to bloom, the first having bronzy sepals and petals and the lip bright purple in front with a yellow throat, and other good things. The majority flower later, and promise a good display in the summer and autumn. Among other things we noted two plants of the orange-coloured Epidendrum Boundii, the brilliant Renanthera Imschootiana, Chysis bractescens, two plants of the dwarf Epiphronitis Veitchii, a good Dendrobium Dearei, Phalænopsis amabilis with two side branches to the inflorescence, and others, while a number of plump Cattleya pods told of interesting hybridising experiments in progress.

Many interesting batches of seedlings in various stages were pointed out, some of them as tiny green globules on their pots of prepared compost, and others in various stages up to flowering size, and all with the parentage carefully recorded. A batch of seedlings of Sophronitis grandiflora × Brassocattleya Leemaniæ, about four years old, was examined with interest, for such a cross might well produce something out of the common. Two of the bulbs we noted were two-leaved. Cattleya O'Brieniana alba × Brassocattleya Leemaniæ was germinating freely, also Cattleya Dowiana aurea × Brassocattleya Menda. Some promising albino crosses have also been made, but we will not attempt to enumerate them.

A few fine varieties in the collection may be mentioned, but an attempt to ennumerate them would require too much space. Among Cattleyas we noted such sterling forms as C. Warscewiczii Frau Melanie Beyrodt, C. Hardyana Countess of Derby, C. Empress Frederick alba, C. Gaskelliana alba, C. Comet var. Princess Mary, C. Mossiæ Reineckeana and Wageneri, C. Lueddemanniana Stanleyi, the varieties of C. Trianiæ known as Premier, Reine des Belges, Goliath, and De Barri Crawshay, and a series of beautiful varieties of C. labiata, white and coloured. Sophrocattleya Doris, Sophrocatlælia Pandora and De Vere Beauclerk, were also pointed out, with Brassocatlælia Veitchii var. Queen Alexandra, Bc. Cliftonii The Globe, Bc. Bradshawiæ and Menda, Læliocattleya George-Woodhams, Maqueda, St.-Gothard, Gottoiana regalis, good forms of callistoglossa, Canhamiana, and others. The plants of Epiphronitis Veitchii are suspended in a light airy position in one of the small Cattleya houses, and are in thriving condition.

Cypripedium Rossetti, and a nice healthy batch of good-sized C. insigne Sanderæ were pointed out, but very few of this genus are grown. We noted also several healthy plants of Angræcum sesquipedale, Vanda Sanderiana, and several healthy specimens of the V. tricolor section. V. cœrulea

has a small house practically to itself, so that its requirements can have special attention, and the plants were in excellent condition, with strong roots and clean healthy foliage, promising a good display of bloom when the proper season arrives. It is a favourite with Mr. Ralli. In this house we noticed a few healthy Renanthera Imschootiana in bud, a plant which succeeds under similar treatment.

The Calanthes—a batch of strong healthy plants—we found growing well in the Cucumber and Melon houses, where the conditions suit them admirably at this season, and where, indeed, some of the best Calanthes that we have ever seen were grown. The heat and moisture, and the shade afforded by the overhanging foliage, apparently afford just the right conditions for the Calanthes. After growth is completed the plants are moved to cooler and drier quarters. Several of the leading kinds are grown, and the spikes are much valued for decorative purposes.

We were also much interested in looking through a collection of Orchid paintings, represented fine things in the collection, and in the records of species and hybrids, all of which are carefully catalogued. A complete set of the *Orchid Review* was pointed out on the Library shelves. Mr. Ralli is an enthusiastic Orchidist, and has a thorough knowledge of the details of his collection, which is under the care of Mr. Farnes, an old pupil of Mr. W. H. White, who for so long had the charge of the Burford collection, which affords a guarantee that the requirements of the plants are well looked after.

Mr. Ralli does not limit his tastes to Orchids by any means, for other phases of horticulture are well looked after at Ashtead Park, and we much enjoyed a walk through the other houses and the very interesting wild garden. These, however, with the trees and the fallow deer, which are features of the place, are outside the scope of the *Orchid Review*, and must be passed over. We hope to repeat our visit on some future occasion.

CYPRIPEDIUM PARVIFLORUM ABNORMAL.—Under the title "A freak Lady-Slipper" has been figured an abnormal state of an American native Cypripedium (*Amer. Bot.*, 1915, p. 126), bearing what is termed a "double flower." The lower sepal is described as having developed into an extra shoe-like part, of the same texture and colour, and with the same brown markings on the inside, as in the usual flower. It was found by Mr. R. L. Fedder in an unspecified woodland, and the condition is believed to be fixed in some of the plants, as there were two specimens growing together and another near by. The buds had not opened when found, so the plants were carefully dug up and transferred to a garden, where they developed perfectly. It is said to represent the smaller yellow lady-slipper, Cypripedium "parvulum," which is clearly a misprint for C. parviflorum.

SALE OF THE BURFORD COLLECTION.

THE celebrated Burford collection was sold by auction, by Messrs. Protheroe & Morris, on May 9, 10, 11, by order of the executors of the late Elizabeth Lady Lawrence, and the total sum realised was £1,407. The more botanical part of the collection, it will be remembered, representing 580 plants belonging to 350 species of 89 genera, was presented to Kew about two years ago, by Sir Trevor's wish (*O.R.*, xxii. p. 176). The top price paid was 21 guineas, which was paid for Cattleya Trianæ Imperator by Mr. Waters Butler, who also secured for 14 gs. the fine plant of Cypripedium Stonei platytænium originally bought from the Day collection for 140 gs. Odontoglossum crispum purpurascens fetched 17 gs., O. c. Laburnum and O. c. Mrs. de Barri Crawshay 15 gs. each, O. c. Oakfield Sunrise 14 gs., O. c. Ronald 11 gs., and two O. c. Moonshine 10 and 11 gs. Læliocattleya Smilax Prince of Orange fetched 16 gs., and Sophrocatlælia bletchleyflora 11 gs., while three Sophrocattleya Chamberlainii went for 5 gs. Several good varieties of Cattleya Trianæ ranged between 4½ and 7½ gs.

The large specimen of Dendrobium Victoria-Regina realised 11 gs., and a smaller one 4½ gs. The unique plant of Warscewizella amazonica (see p. 104) went for 4½ gs., and Zygopetalum maxillare Sanderianum for 5½ gs. Of other rarities we may note that Neomoorea irrorata fetched 3 gs., Eulophiella Peetersiana £3, and Cirrhopetalum longissimum 3½ gs. Six plants of Habenaria Roebelenii fetched 3 gs., and three Bulbophyllum barbigerum 45, 42, and 24 shillings respectively. Trias disciflora went for 24-, Masdevallia deorsa for 22-, Vanda Denisoniana for 40-, Megaclinium purpureorachis 32 6, and a plant of Angræcum distichum with five growths for as low as 5/- Other botanical Orchids realised low figures. The rare and beautiful Vanda suavis pallida fetched 3½ gs., as did also Lycaste Balliæ and L. Rogersoniæ, while L. Skinneri alba went for 45/-, and Lælia autumnalis alba for 42/. Good plants of Cypripedium Maudiæ and C. Rossettii fetched 6 gs. each, and a smaller one of the latter 3½ gs. Brassocattleya Veitchii Queen Alexandra realised 6½ gs., while two Lælia anceps Veitchii fetched 6½ and 5 gs. and L. a. Leeana 3½ gs. The hybrids were were mostly sold in lots of several plants, and realised fair prices.

Among the purchasers may be mentioned Mr. Waters Butler, who was a large purchaser of good plants, Sir Jeremiah Colman, Bart., Mr. Pantia Ralli, Mr. H. T. Pitt, who bought back his Odontoglossum grande Pittianum for 7½ gs. and O. Insleayi splendens for 6½ gs., and Col. Clarke, C.B.

ODONTOGLOSSUM ELFRIDA.

THE hybrids of Odontoglossum Uroskinneri, several of which have now been raised, form a very distinct and interesting little group, and one of the most attractive is O. Elfrida, which was raised in the collection of Mrs. Norman Cookson, Oakwood, Wylam, and which flowered about three years ago (*O.R.*, xxi. p. 185, fig. 35). O. armainvillierense was the second parent, and the annexed figure shows that the shape is quite intermediate, and all the segments very regularly spotted with purple on a white ground.

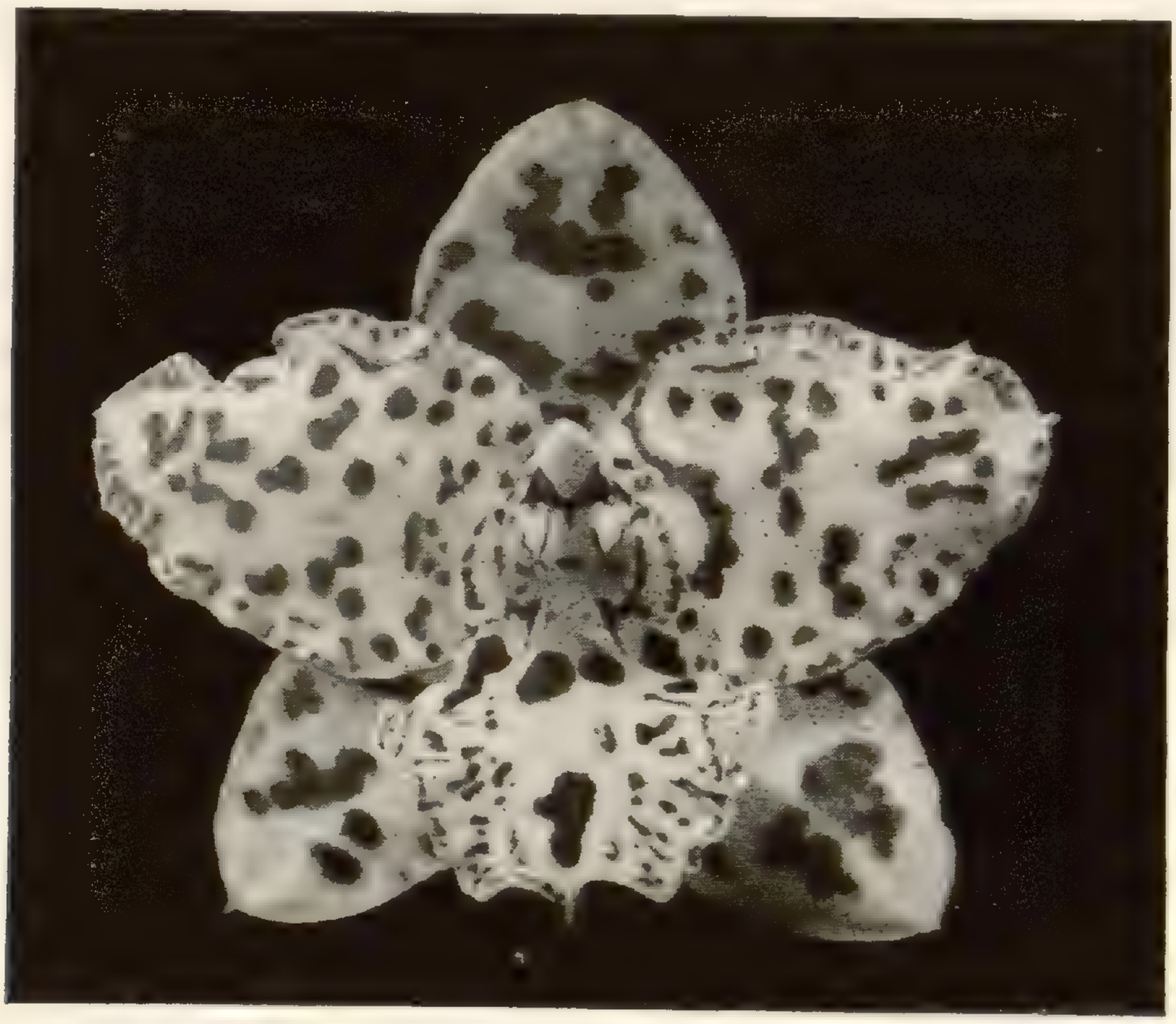

Fig. 29. ODONTOGLOSSUM ELFRIDA.

An unnamed hybrid of similar character, but of unknown parentage, was included in the fine group of Orchids staged by Sir Jeremiah Colman, Bart., at the Chelsea Show, which, we think, must be referred here, as the details of the lip, the white ground colour, and the regular purple spotting are closely in agreement. It is a very charming hybrid.

ODONTOGLOSSUM ARMAINVILLIERENSE MEMORIA J. GURNEY FOWLER.—Respecting the origin of this handsome variety, which received a First-class Certificate at the Chelsea Show, Messrs. Sander & Sons, St. Albans, inform us that it was raised by them between O. crispum solum and O. Pescatorei, and was sold to Mr. Gurney Fowler out of bloom, by description. Many seedings were obtained from the seed-pod, but only one showed the character of the O. c. solum parent.

ORCHIDS IN SEASON.

A FLOWER of Læliocattleya Barbara, a very pretty hybrid, said to have been derived from Cattleya Gaskelliana × Lælia Iona, is sent from the collection of E. F. Clark, Esq., Evershot, Dorset. It has well-shaped, lilac sepals and petals, and the front of the lip purple with a yellow throat. It was unnamed when a flower reached us five years ago (*O.R.*, xix. p. 29), but has since been called Lc. Barbara, after one of Mr. Clark's nieces. Several other seedlings from the cross have flowered, and have varied considerably. The one now sent has hardly any sheath, while another has as good a sheath as C. Gaskelliana, though the habit is dwarfer. A third is more like the Lælia parent, but the leaves more tinged with red, and there is a crimson streak in the middle of the petals. The first that flowered was more like the Cattleya parent with the size of the Lælia. A fine form of Odontoglossum luteopurpureum is also sent, which was purchased as O. Harryanum; whether imported is not stated, but the two species are known to grow together.

Three interesting flowers are sent from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, by Mr. E. W. Thompson. Odontioda Brewii var. Nigger, has almost black-purple sepals and petals, and the lip dark maroon, with an orange-coloured crest. It received a First-class Certificate at Manchester on April 27th. Odontioda Red-Cross var. The Captain, which obtained a similar award on May 11th, is a beautiful scarlet-red flower, with paler margins to the sepals and petals, and a yellowish white apex to the lip. A seedling Odontoglossum is also sent, which, from its colour and markings, is clearly a seedling of O. crispum Black Prince. It has produced a two-flowered scape from a tiny bulb, and should develop into a good thing. The flowers are heavily blotched with blackish purple, and the detals of the lip and wings of the column show the influence of O. Hunnewellianum, which is evidently in some way concerned in the parentage of the plant known as O. crispum Black Prince.

Odontoglossum crispum Phyllis is a beautiful seedling, derived from a cross between two blotched crispums, of which flowers have been received from the collection of A. R. Crossley, Esq., Falling Royd, Hebden Bridge, Yorks. The flowers are of good shape, with broad, somewhat acute, rosy lilac sepals and petals, each bearing a very large claret-brown blotch. The lip is broad, with a prettily crisped white margin, a deep yellow crest, and large chestnut brown blotches. Mr. Crossley remarks that the spike carried ten flowers.

MACODES PETOLA.

THE Anoectochili, or Jewel Orchids, as they have sometimes been called, form a remarkable little group, which are grown entirely for the beauty of their foliage, which in the different species shows various shades of emerald, olive and bronzy green, beautifully reticulated with golden yellow, silvery, or copper-red veining. They belong to several well-marked genera, distinguished by differences in the structure of their flowers, which

Fig. 30. MACODES PETOLA.

are for the most part inconspicuous. The present species, which is a native of Java, is one of the most beautiful, and the leaves have been described as resembling light-coloured green velvet, enriched with well-defined netted lines and bands of a pale or yellowish hue, deepening to golden yellow and covering the whole surface. The species is very easily grown, in a shady position in the Warm house, the protection of a bell-glass raised a little above the edge of the pan to afford ventilation, helping to provide the necessary moist atmosphere.

THE CHELSEA SHOW.

THE Great Spring Show of the R.H.S. was held at the Royal Hospital Gardens, Chelsea, on May 23rd, 24th, and 25th, in delightful weather, except for some rain in the early morning of the third day, and in spite of the inevitable curtailment in space caused by the war, and the shortage of labour, was a brilliant success. The Orchids produced a magnificent display, though the groups, with a single exception, were limited to trade exhibits, and their restricted size—120 square feet being the limit—tended rather to enhance the quality by necessitating a more rigid selection. Continental exhibits and visitors were necessarily absent. The Queen and Princess Mary visited the Show early on Tuesday, and Queen Alexandra and Princess Victoria were present on the following day. The Judges for Orchids were Sir Jeremiah Colman, Bart., and Messrs. F. J. Hanbury, Pantia Ralli, and J. E. Shill.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), R. A. Rolfe, F. J. Hanbury, Pantia Ralli, J. Cypher, Sir Jeremiah Colman, Bart., J. E. Shill, T. Armstrong, H. G. Alexander, F. M. Ogilvie, W. Bolton, A. Dye, J. Wilson Potter, Stuart H. Low, W. Cobb, E. R. Ashton, Gurney Wilson, C. J. Lucas, R. G. Thwaites, A. McBean, J. Charlesworth, W. H. White, S. W. Flory, W. H. Hatcher, R. Booman White, and Clive Cookson.

Thirty-seven plants were entered to go before the Committee, and the awards consisted of two First-class Certificates, six Awards of Merit, and eleven Medals. The Davidson Cup for the best Odontoglossum crispum was won by Messrs. J. & A. McBean.

FIRST-CLASS CERTIFICATES.

BRASSOCATLÆLIA JOAN VAR. VERDUN (Bl. Gratrixiæ × C. Octave Doin).—A brilliant deep yellow form, of good shape, and with the lip well fringed in front. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM ARMAINVILLIERENSE MEMORIA J. GURNEY FOWLER (O. crispum solum × Pescatorei).—A remarkable hybrid, in which the characters of O. c. solum were well represented. The spike bore five flowers, of good shape and substance, and the ground colour white tinged with rose, especially on the sepals. The side lobes of the lip and lower half of the front lobe were solid claret colour, with a yellow crest, while three of the flowers had a claret blotch at the base of the lateral sepals, the third and fifth a similar blotch on the left-hand petal, the petals of the latter flower having also a pair of broad lines at the base. The column was claret colour. Exhibited by Miss Louisa Fowler.

AWARDS OF MERIT.

CATTLEYA NAIDA VAR. LUMINOSA (iridescens × Hardyana).—A brightly-coloured flower of neat compact shape, with bronzy sepals, petals less spreading and more tinged with rose, and the lip purple-crimson with a broad orange throat. Exhibited by Messrs. Flory & Black.

LÆLIOCATTLEYA SIR MERVYN BULLER (Lc. Mrs. Temple × C. Mossiæ).—A brilliant hybrid, having broad, rose-coloured sepals and petals, and a dark crimson lip, with some deep yellow veining in the throat. Exhibited by Messrs. Armstrong & Brown.

MILTONIA FRANK-READER.—A fine hybrid of M. vexillaria memoria G. D. Owen, the other parent being uncertain. It recalls a fine M. Charlesworthii, having bright rose-pink flowers, with a large ruby crimson mask at the base of the lip. Exhibited by Messrs. Armstrong & Brown.

ODONTIODA BREWII VAR. CUPREA (Oda. Charlesworthii × Odm. Harryanum).—A very distinct and brilliant form, the flowers being of a unique shade of coppery orange. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA FLORENCE (Oda. Cooksoniæ × Odm. Dora).—A brilliant hybrid, bearing a panicle with five side branches and 34 finely-shaped flowers, very regularly blotched with crimson on a light yellow ground, and margined with rose. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM CRISPUM ALDWORTHII.—A brilliant variety, bearing a strong inflorescence, just beginning to open, the one fully expanded flower being of excellent shape, with dark ruby red blotches on a blush white ground. Exnibited by Messrs. J. & A. McBean. This superb variety gained the Davidson Cup for the best O. crispum in the Show.

GROUPS AND OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a very handsome group, to which a Gold Medal was awarded. Specially noteworthy features were the number of fine Odontoglossums and brilliant Odontiodas, among the latter being the scarlet and yellow O. Colmanii and a fine O. Bradshawiæ Lady Colman, with spikes of clear scarlet flowers. Odontoglossum Pescatorei virginale, bore a large panicle of pure white flowers, O. Queen of Gatton, and some excellent O. crispum, typical and blotched, were also very effective. We noted also the dwarf O. Œrstedii with two dozen white flowers, two fine plants of Dendrobium acuminatum, four hybrids of D. regium showing its own characteristic colour, Aërides odoratum album, Eria ornata, well-flowered examples of Masdevallia Courtauldiana, tridactylites, and O'Brieniana, Pleurothallis stenopetala, Stanhopea inodora, and others too numerous to mention.

Miss Louisa Fowler, Brackenhurst, Pembury sent a few choice specimens from the collection of her brother, the late J. Gurney Fowler, Esq., including the brilliant Læliocattleya J. F. Birkbeck, with three

flowers, Odontoglossum Princess Mary, white, with a zone of large rosy crimson blotches, O. illustre Europa, bearing a spike of 14 purple flowers margined with white, and the strking O. crispum solum.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), sent Odontoglossum crispum Millicent, a handsomely-blotched form.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. J. T. Barker), sent a good white Cattleya Mendelii, tinged with pink on the front of the lip.

C. Webb, Esq., Codsall (gr. Mr. White), sent a good plant of Bifrenaria Harrisoniæ bearing ten flowers.

TRADE SECTION.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, to which a Gold Medal was awarded. The arrangement was novel, the larger things being attached to the vertical boarding behind, with the smaller on a nearly flat staging in front. The Cattleya group was well represented, but the prominent feature was a series of fine Odontoglossums and Odontiodas, including many promising seedings, and we specially noted the beautiful O. crispum Lusitania, O. c. xanthotes, O. Aglaon Orchidhurst var., Odontioda Ashtoniæ (C. Nœtzliana × O. Fascinator), O. Sirius (Odm. excellens × Oda. Charlesworthii), yellow, with a zone of red blotches, O. Connie (Oda. Cooksoniæ × Odm. Armstrongiæ), Cœlogyne pandurata, the pretty Cypripedium Vipanii, Miltonia vexillaria memoria J. Gurney Fowler, with a very dark black purple mask at the base of the lip, Brassocattleya Schilliana, Læliocattleya Hyeana, and many others.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, arranged as a low undulating bank, a Williams Memorial Medal being awarded. It contained many handsome Odontiodas and Odontoglossums, a fine series of Læliocattleya Fascinator-Mossiæ, and many beautiful forms of Miltonia Charlesworthii, Hyeana, and vexillaria. We noted also beautiful examples of Odontoglossum crispum xanthotes and albiflorum, O. eximium xanthotes, Schomburgkia Wallisii with three spikes, a well-flowered Dendrobium senile, Odontonia Magali-Sander var. xanthotes, and O. Louise, Pleurothallis macroblepharis, Oncidium pulchellum, Odontioda Red-Cross var. Lyoth, a very round, handsomely-blotched form, &c.

Messrs. J. & A. McBean, Cooksbridge, received a Williams Memoria Medal for a very fine group, staged as a high bank, and containing many fine Cattleya Mossiæ and Mendelii, Læliocattleyas, several good Oncidium McBeanianum and O. Gardneri, Dendrobium Sanderæ, Miltonia Rœzlii, Anguloa Clowesii, Maxillaria Sanderæ, Odontioda Vuylstekeæ McBean's var., a brilliant scarlet O. Charlesworthii, and many others, with a series of beautiful Odontoglossums, including fine forms of O. crispum, Pescatorei, eximium, triumphosum, Fascinator aureum, Watsonianum (loochristiense × crispum), &c.

Messrs. Stuart Low & Co., Jarvisbrook, staged a very fine and effectively-arranged group, gaining a Silver-gilt Flora Medal. The centre consisted of a lot of fine Læliocattleyas, Cattleya Dusseldorfii Undine, &c., with a good specimen of Dendrobium Jamesianum on either side, these being followed by a cluster of Phalænopsis amabilis and Renanthera Imschootiana at one end, and of Oncidium Masshallianum, Kramerianum, Gardneri, &c., at the other. We noted also the rare and distinct Cattleya intermedia Aquinii, Læliocattleya luminosa aurea, Vanda Parishii and var. Marriottiana, Brassocattlælia Triune memoria Sir Trevor Lawrence, a very brilliant form, some beautiful Odontoglossums, Odontiodas, Eria erecta, &c.

Messrs. Sander & Sons, St. Albans, also received a Silver-gilt Flora Medal for a brilliant group, arranged in undulating banks. The centre was largely made up of Læliocattleya Fascinator, the rich purple Lc. Hyeana, white and coloured Cattleyas, and many beautiful Miltonias, while the forms of Odontoglossum and Odontioda were excellent. We noted also a fine Acineta Humboldtii with two racemes, Dendrobium Sanderæ and the remarkable D. Harveyanum, a fine Oncidium anthocrene, Cattleya Magali-Sander and C. Mossiæ Wageneri, two beautiful albinos, C. citrina, Ione siamensis, Cœlogyne integerrima, a fine Cypripedium Rothschildianum, Odontoglossum spectable General Joffre with a spike of nineteen flowers, Odontioda Chantecleer Perfection, &c.

Messrs. J. Cypher & Sons, Cheltenham, staged a very effective group, which gained a Silver-gilt Banksian Medal. It contained several well-flowered Dendrobium Wardianum, Oncidium Marshallianum, Lælia purpurata, Læliocattleyas, Renanthera Imschootiana, Epidendrum Boundii, a well-bloomed Lycaste cruenta, Bulbophyllum barbigerum, Cœlogyne pandurata, Odontoglossums, Miltonias, &c.

Messrs. Mansell & Hatcher, Rawdon, East Yorks, also received a Silver-gilt Banksian Medal for a fine group, including some good Cattleyas and Miltonias in the centre, with Odontoglossums and others at the ends, over which hung graceful sprays of O. Thompsonianum and O. Clytie. We noted also a good Cœlogyne pandurata, the remarkable green Lycaste Locusta, Masdevallia Rushtonii, Cattleya Seramis (Mendelii × Empress-Frederick), and a number of good Odontiodas and Odontoglossums, among which were some promising seedlings, including Odontioda Orion (Odm. Jasper × Oda. Charlesworthii), well-blotched with scarlet on a light yellow ground, O. Irene (Odm. Jasper × Oda. Bradshawiæ), a pretty rose pink flower with white margin, O. Dainty (Odm. crispum × Oda. Goodsonii), rose with a cluster of crimson dots in the centre, Odontoglossum Rosalind (Wiganianum × amabile), bright yellow with many brown dots on the segments, O. Seramis (crispum × Phœbe), a beautiful white of intermediate shape, neatly blotched with red-brown, and others.

Mr. H. Dixon, Wandsworth Common, received a Silver Flora Medal for a fine group, including good examples of Odontoglossum illustrissimum and Ceres, Anguloa Clowesii, Dendrobium regium, and a number of good Cattleyas, Læliocattleyas, and Odontoglossums.

Messrs. Flory & Black, Slough, received a Silver Flora Medal for a fine group, including several good Læliocattleya Gladiator, Disa Blackii and two nice clusters of D. Luna, Odontoglossum promerens var. Lilian, O. crispum Black Prince, O. nævium, a few good Cattleys, a particularly fine Sophronitis grandiflora, a well-flowered Dendrobium Loddigesii and the rare D. elongatum, Odontioda Sanderæ, O. Leeana, and other good things.

Mr. C. F. Waters, Balcombe, received a Silver Banksian Medal for a bright little group, including good examples of Cattleya Mossiæ and Mendelii, Oncidium leuchilum, Dendrobium Thwaitesiæ and chrysotoxum, two good Odontioda Bradshawiæ, Renanthera Imschootiana, and a few examples of Miltonia vexillaria, Odontoglossum crispum, and others.

CALENDAR OF OPERATIONS FOR JUNE.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE cold, wet weather experienced during the last two months, with the corresponding want of light, was not at all favourable to the growth of Orchids, and more fire heat was needed to maintain the temperatures than is usual at this time of year.

Every encouragement should now be given to the plants in each department, by attending to such important details as watering, damping down, shading, airing, &c., which make up the general management of Orchid houses, for upon attention of these matters depends the amount of successs to be obtained during the present season.

The general conditions of management of the different houses as regards temperatures, atmospheric moisture, &c., are the same as advised last month, and may continue through the growing season. A moist buoyant atmosphere should now be maintained in every department, but during dull wet weather much less ventilation will be necessary, and care must be taken to avoid a sudden fall in temperature with an atmosphere heavily charged with moisture, especially in a flowering house, or many valuable blooms will be utterly spoilt.

FLOWERING PLANTS.—During the summer months, when numerous plants in each department are in bloom, it is good practice to place those in flower in a house where the atmosphere is drier and cooler than the one in which they made their growth. Should there not be sufficient plants to allow of this, they should be placed in the driest and coolest position in

their respective houses. At the same time, although this treatment may be the means of prolonging the life of the flowers, care must be taken that they are not allowed to remain upon the plants to their detriment.

CATTLEYAS AND ALLIES.—At the present season C. Mendelii, C. Mossiæ, and their innumerable hybrids will make a great show, which will be continued by others right through the season. There are few more lovely things than a house full of well-flowered Cattleyas. C. Warscewiczii (gigas), C. Gaskelliana, and others which produce their flowers in the summer and autumn months are now making strong growths, and some are showing their flower sheaths, and need abundance of light and heat, with water when they become dry. These plants, owing to their short season of growth, must receive generous treatment after growth commences.

C. Dowiana, and its variety aurea, having now started into growth, should also be placed in the warmest position in the house and receive generous treatment. C. Lueddemanniana (speciosissima) is another species that thrives under these conditions of the warm Cattleya house whilst making its growths. These two species are both feeble rooters, and need more care in the application of water to the roots than those which produce more vigorous roots. A careful observer will soon notice those which are more active, and these, when repotted, may be given slightly more room to grow in than those of a feeble nature. C. Warneri and its hybrids grow under similar conditions to the preceding, and the earliest plants will now be nearing the flowering stage. The whole of this section may be repotted soon after the flowering period, when new roots are seen to be pushing from the base of the pseudobulbs.

THUNIAS will now be pushing up their flower scapes, and may be given alternate waterings with weak liquid manure. As the flowers of the different species commence to open, it is advisable to remove them to cooler quarters, where the plants will remain much longer in bloom than if allowed to remain in the Warm house.

COCHLIODA NŒTZLIANA and the other interesting species of this genus are best grown suspended from the roof of the Cool house. They require the same treatment as Odontoglossum and other occupants of this division. There are few plants that have had such an effect on our collections as C. Nœtzliana, and it is solely to its influence that our Cool houses are now made so dazzlingly bright. Shades of red and scarlet were sadly needed until this brilliant species was taken in hand by hybridists, and now the effects are seen on every hand. What a boon it would be if some species could be found which would have the same effect upon the warmer divisions of our collections!

CALANTHES.—The deciduous Calanthes are now becoming strongly rooted, and may be watered more freely, but still carefully, as spot in the

foliage is frequently the result of over-watering before the plants have become well rooted. Watering with cold water, strong doses of liquid manure, draughts, and other things are also liable to cause this dreaded disease.

CYPRIPEDIUMS.—Such plants as C. Lawrenceanum, Stonei, Curtisii, Rothschildianum, C. Maudiæ, and others which delight in the heat of the warmest house should have immediate attention, if increased root space is necessary. The same applies to those of the Selenipedium section, where they are grown. The whole of these plants thrive in the same potting material as the cooler section, which was potted earlier in the season. Besides these mentioned, those of the C. bellatulum and C. niveum section, that have recently flowered, with their hybrids, should be repotted if necessary. Well-rooted specimens in good material, with room to develop, should not be disturbed.

Many succeed in growing these plants in compost in which loam preponderates, but I find they thrive quite satisfactorily in a compost made up of two parts of peat fibre, one loam fibre, and one sphagnum moss, with some small pieces of mortar rubble added. The plants must be potted rather firmly, and should be grown well elevated up to the glass in a warm Intermediate house. To those entrusted with the potting of the different plants, the firmness of the compost is an interesting study, and one which should receive attention. This section of Cypripediums require careful watering at all seasons.

ONCIDIUM PAPILIO.—This, and the allied O. Kramerianum, and O. Sanderæ are most beautiful species, and, owing to the shape of their flowers, are sometimes called Butterfly Orchids. They flower during the summer months, and, although only producing one bloom at a time, they are produced in succession during the season, and when in bloom are always interesting. Too frequent flowering weakens the plants, therefore it is advisable to remove the old spikes from time to time, to allow fresh and vigorous ones to form. These plants thrive under the warmest conditions, and should be grown in small pans or baskets in a clean open compost.

MILTONIA VEXILLARIA.—Towards the end of the month, in many collections, plants of this species, and its spring flowering varieties, will have passed their flowering stage, and should be allowed to enter upon a short period of rest. Immediately the spikes are removed the plants should be taken to a cool, shady position in the Intermediate or Cool house. Although never absolutely at a standstill as regards growth, nothing should now be done to induce it. For some few weeks it will only be necessary to keep the compost moist, but on no account must the plants be allowed to suffer for want of moisture, either at the roots or in the atmosphere. In cold localities the cool Intermediate house is the most suitable at this

season, as the thin leaves are very susceptible to injury, especially when grown in a cold damp atmosphere. The hybrids M. Bleuana, Hyeana, and others, like M. Rœzlii, thrive in a slightly higher temperature at all seasons, and should be grown elevated well up to the glass, to prevent the growths from becoming drawn.

ODONTOGLOSSUM CITROSMUM, as it passes out of bloom, should be repotted, if the compost is at all decomposed. The pans must not be too large, and the drainage perfect. The usual Odontoglossum compost is suitable, and the plants must be potted quite firmly.

MASDEVALLIAS of the Chimæra section that have been wintered in the Intermediate house, should be removed at once to a shaded position near the roof glass in the Cool house. These plants require plenty of water during hot, dry weather, and should be frequently syringed or sprayed to prevent red spider attacking their leaves.

TRICHOPILIAS.—Some of these plants are now in bloom, and others will have passed their flowering stage. The white-flowered forms, such as T. Backhouseana and T. suavis alba, are among the most chaste and beautiful, and deserve to be grown wherever white flowers are appreciated. In the Intermediate or Cattleya house T. suavis will now be forming new growths, and when these are a few inches long, and about to push new roots, is the best time to repot any that are in need of it. They are best grown in pans suspended from the roof, where the short-stemmed flowers are seen to great advantage hanging over the sides of the pans. They succeed in a similar compost to that used for Cattleyas. Excess of moisture, both at the roots or in the atmosphere, must be avoided. Many of these inexpensive Orchids would be much more sought after, and be much more grown, were they not so easily obtainable.

GENERAL REMARKS.—Continual watchfulness is necessary to combat the different foes which infest our plants, and the successful cultivator will always need to be on sentry duty. We may bring our culture almost down to rule of thumb, but unless that practice is intelligently applied failure may occur, in spite of much hard work.

ODONTIODA CHANTECLEER VAR. PERFECTION.—A fine plant of this beautiful variety was included in Messrs. Sander & Sons' group exhibited at the Chelsea Show, and it is said to have been raised from Cochlioda Nœtzliana and Odontioda Vuylstekeæ. The colour is deep scarlet, and it is most comparable with a much enlarged and improved form of the Cochlioda parent. The record is interesting, because some doubt has been expressed as to the parentage of M. Ch. Vuylsteke's original O. Chantecleer, and it is believed that the record of O. Goodsoniæ is incorrect. So far as can be seen by comparison the two are identical in parentage.

CYNORCHIS COMPACTA.

THIS is a charming little Orchid, of the easiest possible culture, which has again flowered very freely at Kew. It resembles a dwarf Orchis in general appearance, seldom exceeding four inches high, and the flowers are pure white, with a few minute purple dots on the disc of the lip. Its floriferous character is well shown in the annexed figure. The plants bear

Fig. 31. CYNORCHIS COMPACTA.

a single leaf, which is ovate-oblong in shape at flowering time, but elongates somewhat afterwards. The species is a native of Natal, and was discovered by Sanderson as long ago as 1869, though it was not described until nearly twenty years afterwards (Rchb. f. in *Flora*, 1888, p. 149). In 1895 it was rediscovered by Dr. J. Medley Wood, on rocks at Emberton, at 2100 feet elevation, and soon afterwards appeared in cultivation. It is figured at t. 8053 of the *Botanical Magazine*. It succeeds well grown in pans in the Cool house, in a mixture of loam and leaf-mould, and remains long in beauty.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 2nd, when there was a good show of Orchids, and the awards consisted of three Medals, four Awards of Merit, and two Preliminary Commendations.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., F. J. Hanbury, R. G. Thwaites, Pantia Ralli, E. R. Ashton, F. M. Ogilvie, T. Armstrong, Walter Cobb, A. McBean, J. Charlesworth, W. H. Hatcher, H. G. Alexander, J. E. Shill, A. Dye, W. H. White, S. W. Flory, C. J. Lucas, G. Wilson, S. H. Low, R. Brooman-White, De B. Crawshay, and R. A. Rolfe.

THE LATE CHAIRMAN.—Before commencing the business, Sir Harry J. Veitch referred to the great loss which the Committee and horticulture generally had sustained in the death of their Chairman, Mr. Gurney Fowler, with whom he had worked continuously, and had found him a clever and impartial worker. His loss left a great blank in the Society, which it would be very difficult to fill. On behalf of the Committee he tendered deep sympathy to the members of the family. Sir Jeremiah Colman, Bart., in seconding the vote of condolence, said that he had collaborated with Mr. Gurney Fowler, both at the R.H.S. and on Government work. By his death horticulture had lost one of its best friends, and the Orchid interest one of its cleverest and most substantial supporters. The vote of condolence was forwarded to the deceased's sister, Miss Louisa Fowler.

AWARDS OF MERIT.

BRASSOCATLÆLIA QUEEN OF THE BELGIANS BRYNDIR VAR. (Bl. Veitchii × C. Mendelii Princess of Wales).—A fine form, bearing a spike of three flowers, with clear white sepals and petals, and the front of the lip light rosy purple. Exhibited by Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Cresswell).

MILTONIA VEXILLARIA LYOTH SHRUBBERY VAR. (v. chelseiensis × v. memoria G. D. Owen).—A fine form, with light rose flowers, and a rich crimson mask and some radiating lines at the base of the lip. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

ODONTIODA AURORA (parentage unrecorded).—A handsome form, somewhat resembling O. Bradshawiæ, the flowers being heavily blotched with dark red on a light yellowish ground, and the margin rose. Exhibited by G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden).

ODONTIODA GRATRIXIÆ BRYNDIR VAR. (Oda. Charlesworthii × Odm. amabile).—A handsome hybrid, with broad, bronzy crimson sepals and petals, and the lip margined with rose, and blotched with some chestnut brown in front. Exhibited by Messrs. Flory & Black, Slough.

PRELIMINARY COMMENDATIONS.

ODONTOGLOSSUM ERZERUM (Fascinator × crispum).—A promising seedling, heavily blotched with claret-purple on a light ground. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM GENERAL TOWNSHEND (King Emperor × Wilckeanum).—A fine thing, having bronzy red flowers, with a small white base and a narrow white margin. Exhibited by Messrs. Armstrong & Brown.

OTHER EXHIBITS.

G. W. Bird, Esq., West Wickham, sent Odontioda Trebizond (Odm. Fascinator × Oda. Charlesworthii), having rose-coloured flowers, blotched with purple.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Læliocattleya George-Branch (bletchleyensis × Ballii), having the flowers suffused with purple on a yellow ground.

F. W. Ogilvie, Esq., Oxford, showed Miltonia Violetta, apparently a form of M. Hyeana, having white flowers, tinged with rose on the base of the petals, and a crimson mask at the base of the lip.

S. H. Lane, Esq., Worton Manor, Isleworth, sent Epidendrum variegatum var. coriaceum, Lindl., a small-flowered form that was originally figured as a distinct species (*Bot. Mag.*, t. 3595).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including several fine examples of Miltonia Charlesworthii, M. vexillaria Lyoth, and M. Bleuana, with Cattleya Schilleriana, some fine Odontiodas and Odontoglossums, a well-flowered Masdevallia coriacea, Dendrobium infundibulum, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a showy group, including examples of Dendrobium nobile virginale, D. Jamesianum, and others, Cattleya Mendelii, a beautiful C. Schrœderæ alba, Brassocattleya Veitchii Queen Alexandra, some good Læliocattleyas, &c. (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including a fine Angræcum sesquipedale, several fine Læliocattleya Hyeana, Dendrobium Brymerianum, Vanda cristata, and some good Læliocattleyas, Odontiodas, and Odontoglossums (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a good form of Odontioda Madeline, O. Royal-Gem var. violacea, Odontoglossum Trebizond (King-Emperor × eximium), a fine thing, and a few other seedlings.

Messrs. Flory & Black, Slough, sent two well-flowered Sophronitis-

grandiflora, Sophrocatlælia xanthina (St. Psyche × Lc. Ophir), a pretty flower of deep apricot-colour, and a good hybrid Odontoglossum.

Mr. C. F. Waters, Balcombe, staged a pretty group of Dendrobiums, with a few Odontoglossum crispum and two good Cœlogyne Lawrenceana.

A second meeting was held on May 16th, only a week before the Chelsea Show, when very few Orchids were exhibited, though a particularly fine group gained a Silver-gilt Flora Medal; an Award of Merit and a Preliminary Commendation were also given.

Orchid Committe present: Sir J. Colman, Bart. (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Pantia Ralli, G. Wilson, F. J. Hanbury, F. M. Ogilvie, W. Cobb, J. Charlesworth, J. E. Shill, W. H. White, S. W. Flory, C. J. Lucas, and R. A. Rolfe.

AWARD OF MERIT.

MILTONIA HYEANA SHRUBBERY VAR. (Bleuana Stevensii × vexillaria G. D. Owen).—A beautiful white form, with rosy base to the petals and a dark purple mask at the base of the lip. Exhibited by F. M. Ogilvie, Esq.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM BAILEYI (King Emperor × amabile).—A beautiful hybrid, bearing a very large orange-red blotch on each segment, leaving a broad white margin. Exhibited by Messrs. Armstrong & Brown.

OTHER EXHIBITS.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. W. Balmforth), received a Silver-gilt Flora Medal for a select group of finely-grown Orchids, including the chaste Odontoglossum crispum hololeucum, three fine O. c. White Lady, the finely spotted O. c. Alexandrovitch, a very fine O. Pescatorei, two distinct forms of Odontioda Chantecleer, O. Mrs. F. M. Ogilvie, with some good Cattleyas and allies, Miltonia Charlesworthii and other choice things.

T. J. Finnie, Esq., Claygate (gr. Mr. Frogley), showed a particularly strong plant of Catasetum Rodigasianum, bearing two spikes of about forty green and brown flowers.

Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Creswell), sent Odontoglossum Dora Bryndir var., most like a fine O. Pescatorei heavily blotched with violet.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed Odontoglossum Panther (crispum × Lambeauianum), and two prettily blotched O. ardentisper (armainvillierense × Jasper).

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), sent a fine plant of Cymbidium Lowgrinum Rosslyn var.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent Odontoglossum Pescatorei Grand Duchess, a very fine form.

Messrs. Armstrong & Brown, Tunbridge Wells, sent three promising seedling Odontoglossum eximillus.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on April 27th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, A. G. Ellwood, J. Evans, A. R. Handley, A. Hanmer, J. Lupton, D. McLeod, W. Shackleton, S. Swift, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum Phœbe Ashworth's var., a large, intensely spotted flower, and Miltonia Charlesworthii var. Rossendale, a large flower of good colour; from R. Ashworth, Esq.

Cattleya Brenda Gratrixiæ, a large flower of good substance, and Sophrocatlælia Niobe (Lc. Gottoiana × Sl. Felicia), a brilliantly-coloured form, from S. Gratrix, Esq.

Odontioda Brewii var. Nigger, an intensely dark variety, almost black, and O. Brewii Haddon House var., a well-formed flower of good colour; from P. Smith, Esq.

Oncidioda Cooksoniæ var. splendens (C. Nœtzliana × Oncidium macranthum), a flower of good shape and deep red colour; from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Odontoglossum Aireworth var. Rossendale, O. Vulturia Ashlands var., Odontioda Zenobia Ashlands var., and Cypripedium caudatum Ashlands var.; from R. Ashworth, Esq.

Odontoglossum Ruby var. Distinction (crispo-Harryanum × Vuylstekei), O. Caroline var. Golden Fleece (Lawrenceanum × Pescatorei), Miltonia Phalænopsis Haddon House var., and Cypripedium niveum var. Fairy Queen; from P. Smith, Esq.

Miltonia Bleuana Carter Place var., and Odontoglossum promerens var. Leoniæ; from Tom Worsley, Esq.

Odontoglossum crispum var. Virgin Queen; from Mrs. Gratrix.

Cattleya Dominiana West Point var.; from S. Gratrix, Esq.

Cymbidium Lady Evelyn James; from the Hon. Robert James.

Dendrobium roseum Beardwood var.; from Sir J. Rutherford, Bart.

Odontioda Joan (Oda. Charlesworthii × Odm. armainvillierense); from Messrs. Charlesworth & Co.

CULTURAL CERTIFICATE.

To Mr. C. Findlow, for a plant of Odontoglossum crispum, carrying three spikes from one bulb, with an aggregate of 34 flowers and buds.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch

(gr. Mr. W. Gilden), and to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), for very fine miscellaneous groups.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, and to Messrs. Sander & Sons, St. Albans, for effective groups of the showy Orchids of the season.

Interesting exhibits were staged by Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); S. Gratrix, Esq., Whalley Range (gr. Mr. Jamieson); Mrs. S. Gratrix; Col. Sir J. Rutherford, Bart., M.P. (gr. Mr. J. Lupton); the Hon. Robert James, Richmond, Yorks (gr. Mr. J. Benstead); A. J. Oakshott, Esq., Bidston (gr. Mr. C. Findlow); Messrs. J. & A. McBean, Cooksbridge; Messrs. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford, several of which appear in the Award List.

At the meeting held on May 11th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. C. Cowan, J. Cypher, A. J. Ellwood, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, W. Shackleton, S. Swift, H. Thorpe, G. Weatherby, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontioda Zenobia var. Ashworthiæ, a full round flower of good colour; Odontoglossum Aireworth var. Ashworthiæ, a large flower with beautiful markings, and Miltonia vexillaria var. Rossendale, the most highly coloured of the section seen; from R. Ashworth, Esq.

Cypripedium gloriosum (Holdenii × callosum Sanderæ), and Odontoglossum crispum xanthotes var. Snow Queen, a densely-flowered spike, with round, well-marked flowers; from Tom Worsley, Esq.

Brassolælia Veitchii West Point var., a flower of good shape and substance, and of brilliant colour; from S. Gratrix, Esq.

Odontioda Red Cross var. The Captain (Odm. armainvillierense × Oda. Cooksoniæ, a flower of good shape and colour, with well set lip; from P. Smith, Esq.

Brassocatlælia Apollo var. Rhodesia (Bc. Veitchii × C. Mendelli), a large flower, of beautiful shape, with large fringed lip, a home-raised seedling; from H. Thorp, Esq.

AWARDS OF MERIT.

Cattleya Mendelii var. Brightness, Odontoglossum crispum Peter Pan, O. c. xanthotes var. Madge, and Cypripedium Rowena var. The Ghurka; from P. Smith, Esq.

Odontioda Brewii var. Rembrandt; from R. Ashworth, Esq.

Odontioda Schroderi var. Khaki King; from Tom Worsley, Esq.

OTHER EXHIBITS.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine miscellaneous group.

A Large Silver Medal was awarded to Messrs. Cypher & Scns, Cheltenham, and a Silver Medal to Messrs. Sander & Sons, St. Albans, for good groups.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a small group of Odontoglossum crispum, with a fine plant of Auguloa Clowesii.

H. Arthur, Esq., Blackburn, staged Odontoglossum Rossii immaculatum.

Interesting exhibits were also staged by P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); S. Gratrix, Esq., Whalley Range (gr. Mr. Jamieson), and H. Thorp, Esq., Middleton, all of which are enumerated among the awards.

Messrs. Charlesworth & Co., Keeling & Sons, and W. Shackleton staged small exhibits of choice varieties.

The Annual Meeting of the Society was held at 2.30 p.m., the Rev. J. Crombleholme presiding. The Report and Balance-sheet were adopted. R. Ashworth, Esq., was re-elected President. The Vice-Presidents were re-elected, with the addition of J. J. Bolton and Wm. Bolton, Esqs.

The following gentlemen were elected on the Committee: Messrs. D. A. Cowan, J. C. Cowan, Dr. Craven Moore, Rev. J. Crombleholme (Chairman), J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hanmer, Dr. Hartley, F. Houghton, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, Dr. F. T. Paul, F. K. Sander, W. Shackleton, S. Swift, H. Thorp, G. Weatherby, Z. A. Ward (Vice-Chairman), and T. Worsley.

The prizes were presented to the successful exhibitors as follows:—

J. J. Bolton's Gold Medal, to Tom Worsley, Esq., Gardener's Prize to Mr. T. Wood, and the Silver-gilt Medal, to R. Ashworth, Esq., Gardener's Prize to Mr. W. Gilden.

Botanic Society of Manchester's Gold Medal, to R. Ashworth, Esq.

Charlesworth & Co.'s Objet d'Art, to R. Ashworth, Esq., Gardener's Prize to Mr. W. Gilden.

A. Hanmer's Silver Cup, to R. Ashworth, Esq., Gardener's Prize to Mr. W. Gilden.

Hassall & Co.'s Silver Cup, to R. Ashworth, Esq., Gardener's Prize to Mr. W. Gilden.

A. J. Oakshott's Prizes: 1st, to Mr. E. Rogers; 2nd, to Mr. E. Findlow; 3rd, to Mr. W. Gilden.

P. Smith's Prizes: 1st, to Mr. W. Gilden; 2nd, to Mr. J. Lupton: 3rd, to Mr. T. Wood.

Z. A. Ward's Silver Cup, to R. Ashworth, Esq., Gardener's Prize to Mr. W. Gilden.

The Society's Gold Medal for Small Amateurs, to F. A. Hindley, Esq.

The Society is pleased to report that almost all the prizes have again been offered for the coming session, and the complete list will appear in the members' cards in due course.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during June, on the 6th and 20th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting will be the Great Summer Show, to be held at Holland House, Kensington, on July 4th, 5th, and 6th.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on June 1st, when the Committee will meet at 12 o'clock noon. The Programme for the coming year is not out yet, but we are advised that the meetings will be held fortnightly as far as possible during the session.

The absence of Silver Cup awards at the Chelsea Show is noticed by a correspondent. We believe it is one of the economies imposed by the war, and must not be taken as indicating a decline in the quality of the exhibits. The decision not to award Cups to Nurserymen was announced at page 76, and the decision seems to have been extended to amateur exhibits. In fact there has been a general alteration in the awards, and it would appear that groups which in ordinary years would have secured a Silver-gilt or a Silver Cup have now been awarded a Williams Memorial Medal or a Silver-gilt Flora Medal, while other awards have been correspondingly reduced.

ANSWERS TO CORRESPONDENTS.

J.C.—Stanhopea inodora, Lindl.

J.A.—Habenaria chlorantha, Bab.

C.R.—The blotched forms of Odontoglossum crispum grade away from the typical form by such imperceptible degrees that they are generally called varieties, though they certainly contain some secondary hybrids and partial reversions. It is doubtful whether any absolute separating line can be drawn.

F.D.—Received with thanks. The seeds have been sown, and we hope to report later.

Catalogue received.—We have received the priced Catalogue of Orchids issued by Messrs. Flory & Black, Orchld Nursery, Slough, containing a fine selection of hybrid seedlings and other Orchids, including the entire stock acquired from the late firm of Messrs. James Veitch & Sons. Besides the named varieties, we note rhat a number of unflowered seedlings of known and select parentage are offered, so that amateurs have a good opportunity of making a selection.

The Orchid Review

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OUR NOTE BOOK.

THE question of the Protection of Horticultural Novelties has again been raised (*Gard. Chron.*, 1916, i. p. 301). "Plant Breeder," though regarding the new R.H.S. Certificate as a step in the right direction, asks of what value this new Card of Preliminary Recognition can be, or of the numerous Conferences on Nomenclature arranged by the R.H.S., without legislation to enforce their recognition? Again, he asks, is it right that a man who has been the medium of bringing into being a beautiful flower can reap no legal benefit from his skill or research? The moment such a novelty enters the arena of commerce it is reproduced and sold by the community because of the absence of machinery to put a stop to what is termed "legal piracy." And he remarks that the plant-collector who searches the world for unknown flowers is placed in exactly the same category.

As a remedy for what is called a "crying shame," it is suggested that a bill be placed before Parliament giving the R.H.S. permission to grant protection for the selling rights for a number of years of novelties—the scheme to be controlled by the Patent Office with the R.H.S. as its advisor, and the recipient of such protection to have the usual legal remedy given to other commodities in the case of an infringement of their protected rights, *viz.*, an injunction and damages. It is regarded as essential to the granting of the proposed protection that a "Certificate of Distinction" be granted to a novelty, and further, that the R.H.S. should have absolute power to grant or withhold such a Certificate. The idea, it is argued, provides a substantial foundation for a rational and just scheme of protection—it gives to the owner, be he rich or poor, the same privilege as is given to, say, the composer of a piece of music; the absolute distributing rights for a number of years, though the purchaser might retain the existing freedom to reproduce the novelty, if he so desire, for his own use and enjoyment during the protection period.

We are asked how far such a scheme could be applied to Orchids, and

whether the objections do not outweigh the supposed advantages. At the very outset comes in the question of ownership, and here a point said to have been agreed upon in France, that the *first* individual to *register* a particular novelty should be declared the lawful owner, is quoted with approval. Such a scheme could not possibly be applied to the discovery and introduction of a wild plant, and scarcely to indistinguishable hybrids raised independently by different operators. It might occur to several people that a hybrid between, say, Cochlioda Nœtzliana and Odontoglossum Harryanum would make a fine horticultural acquisition, and if they put their ideas into practice, no case could be made out for a monopoly being given to the first seedling that happened to flower and get registered. The case is not altogether suppositious. And Dendrobium Wiganiæ, which flowered with Sir Frederick Wigan, Bart., at Clare Lawn, in March, 1896, appeared shortly afterwards with Messrs. Veitch and Sir Trevor Lawrence. All were the result of independent attempts to introduce a yellow colour into the fine Dendrobiums of the D. nobile group.

Even if it were a question of repeating a cross that some one else had proved successful, we do not see how anyone could be prevented from crossing plants that were his own property. If protection is only sought against the reproduction of the actual plant certificated it would not carry one far in the case of Orchids, as propagation is in many cases notoriously slow, and before a stock was obtained other seedlings that were practically indistinguishable might appear. The question of the use of a certificated name would also arise, but any prohibition would lead to an inordinate multiplication of synonymy unless limited to varietal names, including Florists' varieties, and even then would be difficult to apply in the case where plants of independent origin proved indistinguishable.

The question has often been discussed, but the difficulties have hitherto proved insuperable, and we remember that at the Hybridisation Conference held in London in 1889 Mr. George Bunyard claimed that the remedy lay in the raiser's own hands. All he had to do was to raise a stock of a novelty and place a remunerative price upon each plant before parting with any. The whole subject bristles with difficulties, and prohibitory measures, unless very carefully guarded, would tend to discourage individual experiment, and retard progress. Besides, protection has a habit of cutting both ways, and raisers should be careful how they forge a weapon that might be used against themselves.

Several references to the policy of growing Orchids during these strenuous times have appeared in the public press, one of which was

brought to our notice by the late Mr. J. Gurney Fowler, who thought that some reply should be made. He remarked that Orchid growing was a large industry, and that plants in many cases represented years of enterprise and experiment, and if lost could not be replaced. Many Orchid growers were away at the front, and already there was difficulty in getting men to look after the plants, and he thought that every effort should be made to keep things going until the return of normal times.

LUEDDEMANNIA VYVEREANA.—About three years ago a plant was received at Kew from Messrs. Sander & Sons, St. Albans, as "Houlletia sp., Peru." It was then thought to be an Acineta, but now that it has flowered it proves to be a Lueddemannia, differing from those previously known in having the sepals closely spotted with red-brown on a pale yellow ground, while the petals are similarly spotted at the base and apex, leaving a small yellow area in the centre. The lip is clear deep yellow, with the small front lobe crimson and a dark purple area at the base. There is a Lueddemannia Vyvereana (Schltr. in *Orchis*, 1912, p. 113, t. 27, fig. 7-13), which flowered with Herr Van de Vyvere, and which had been obtained from Messrs Sander & Sons as "Acineta sp., Peru," and although the colour is not stated, and is not indicated in the outline sketch, it seems probable that the Kew plant belongs to the same species. The plant bears a pendulous raceme of very numerous flowers, with a general resemblance to L. Pescatorei, Lind. & Rchb. f., whose history is given at page 240 of our first volume. The appearance of another species is interesting, for this remarkable genus has been almost lost sight of during recent years.—R.A.R.

BULBOPHYLLUM AVICELLA.—A curious little Bulbophyllum has just flowered at Kew. It is a piece from the collection of the Hon. N. C. Rothschild, which was collected on trees about twenty-five miles from the coast, at Sawarinda, Borneo, and proves identical with B. Avicella, Ridl. (*Journ. Linn. Soc.*, xxxii. p. 270), a species originally described in 1896 from specimens collected at Singh Kranji, Singapore. The author remarked that it was very common in the mangrove swamps, but seldom to be met with in flower, and that it climbs on the stems and branches, bearing solitary flowers on very short scapes, which somewhat resemble the head of some large-billed bird. It was in allusion to this character that the specific name was given. The species was afterwards found on Government Hill, Penang, and its discovery in Borneo indicates a possibly wider range. It bears slender creeping rhizomes, with small pseudobulbs at intervals of an inch or more, and elliptical-oblong leaves, 1 to 2 inches long, the small flowers being dull purple with some yellow on the dorsal sepal.—R.A.R.

ORCHIDS AT HAYWARDS HEATH.

AMONG the seedling Odontoglossums which have become so numerous during recent years is a type of albino of the O. crispum xanthotes set, of which examples have frequently appeared in the choice groups staged by Messrs. Charlesworth & Co. at our horticultural meetings, and we recently had the pleasure of seeing a charming little group of them in their fine establishment at Haywards Heath. They are among the most beautiful of recent acquisitions, the purity of the white ground colour and the clear yellow blotches giving a very charming effect. They represent a quite distinct type of albinism, for while both the rosy tinge of the sepals and the brown markings of the column and lip are suppressed, the blotches are almost invariably present in the sepals and lip, affording a pleasant contrast to the numerous blotched forms. From a decorative standpoint they are comparable to some extent with the beautiful Phalænopsis amabilis, with the advantage, as Mr. Charlesworth well pointed out, that they can be grown in a greenhouse temperature, a quality that ensures for them an increased popularity in the future.

The original O. crispum xanthotes appeared many years ago as an imported plant, the colour being white with an occasional clear yellow spot on the sepals and lip. Subsequently others appeared, of better shape and with more numerous yellow spots. It was one of these, united with an albino of O. Pescatorei that gave the charming O. armainvillierense xanthotes, and this, crossed with O. crispum xanthotes Charlesworthii, gave the equally beautiful O. eximium xanthotes. Messrs. Charlesworth also raised a number of seedlings from O. crispum xanthotes Cooksonii crossed with O. c. x. Charlesworthii, and we saw examples of all of them in bloom. Some of the two latter batches are very difficult to distinguish. The albinism proves constant, for Mr. Charlesworth remarked that in no case was there any reversion to purple. It is a triumph of hybridisation, representing years of perseverance, and it says much for the improved methods of culture now in vogue.

We also saw a beautiful series of the blotched hybrids in the the raising of which the firm has been so successful, and a brilliant lot of Odontiodas, some of which appeared at Chelsea a few days later. One particularly interesting batch of seedlings was Odontioda Charlesworthii recrossed with Odontoglossum Harryanum, showing a remarkable range of variation, the most extreme of which closely resembled O. Harryanum in the pattern and colour of the markings, while the shape was that of ordinary Odontioda Brewii. Almost at the other extreme may be mentioned the brilliant

O. Brewii cuprea, which received an Award of Merit at the Chelsea Show, in which the flowers are of a nearly uniform shade of coppery orange. Another had rather lighter sepals and petals with a red lip. One was scarlet red with some orange and brown on the lip. Then came a crimson-brown with magenta purple lip, on which were a few white splashes; then a dark maroon brown with purple lip; one crimson with a red-purple lip, splashed with yellow, and one, just expanding, almost uniform blackish purple. In shape much less variation was apparent. We also saw Odontioda Elsie, obtained by crossing O. Charlesworthii with the other original parent, Cochlioda Nœtzliana, this having scarlet flowers, with a marked return to the Cochlioda grandparent in shape.

The forms of Odontioda Bradshawiæ, Patricia, Joan and others made a very bright display, and there were some examples of excellent culture, the plants bearing large panicles of numerous flowers. A form of O. Red-Cross bore an inflorescence of 33 flowers of excellent shape and very rich colour. Among the blotched Odontoglossums were many beautiful things, but we must be content with mentioning the wide range in shape and in the extent and colour of the markings, several very diverse forms being pointed out as seedlings from the same capsule. There were many examples of good culture, strong plants with ample panicles of handsome flowers, of the highest value for decorative purposes.

Another group that was making a fine display was the Miltonias, particularly forms of M. vexillaria and Bleuana. M. vexillaria Lyoth is a charming form, raised from the varieties chelseiensis and memoria G. D. Owen, and having well-shaped flowers, with a dark mask at the base of the lip, from which extend a number of radiating rosy lines. Some good forms of M. Charlesworthii showed variations in depth of colour and in the development of the dark butterfly-shaped blotch at the base of the lip. Plants with two and three spikes of six and seven flowers were handsome objects. A good form of M. Roezlii was noticed, also plants of the richly-coloured M. Warscewiczii, with some of its hybrids, which are being raised with success. Plants of Odontonia Lairesseæ, from the latter and Odonto-glossum crispum, carried ample panicles of flowers, and there were two examples of the beautiful light yellow O. Magali-Sander xanthotes, the history of which and a figure are given at page 169. Some interesting seedlings were pointed out, but of these we may defer further mention until they flower, some of them probably in the near future.

At the lightest end of one of the Cool houses a batch of healthy seedlings of Disa grandiflora was pointed out, these having been obtained from a good variety with the object of obtaining plants with stronger constitution if possible, in which respect at all events there is room for improvement. D. Luna was in bloom, and a seedling of D. Blackii was just opening, this

being the first of a batch raised from D. Luna × grandiflora. It was most like D. Luna in colour, and as the latter has a good constitution it would be interesting to follow up the crossing with D. grandiflora. The seedlings flower quickly, so that one need not wait too long for the results.

In a Warm House we were much interested to see a number of seedling Eulophiellas in thriving condition. Those from E. Elisabethæ × Peetersiana were four or five years old, and of considerable size, while a later batch was from the reverse cross. Their flowering will be awaited with interest, for the two parents are very distinct, both in habit and colour, and E. Peetersiana, though very handsome, is rather unmanageable as regards size. Plants of Neomoorea irrorata were in thriving condition, and, what is particularly interesting, they are said to flower every year—it may be remembered that two spikes were exhibited at the R.H.S. meeting held on March 28th last (page 109). The plants occupy a shady position at the south end of the Phalænopsis house, the glass being covered with a thick coat of permanent shading, and it is evident that the increased amount of heat is to its liking. Near by were plants of Angræcum sesquipedale, a nice lot of A. Sanderianum in bloom, Bletia verecunda, Bulbophyllum nudiscapum with four spikes, a large plant of Cœlogyne burfordiensis, the remarkable Dendrobium senile with five blooms, a batch of healthy Phalænopsis, and others.

Many interesting things were noticed in walking round the nursery, and among forms of the early-flowering Cattleyas and Læliocattleyas we may mention the rare C. Walkeriana, several showy C. Skinneri, C. S. alba, C. Tityus, C. Schilleriana, a plant of C. intermedia with eight spikes, several forms of Lælia purpurata, Læliocattleya Cholletii, and various more familiar hybrids. The majority bloom later, and there is a large stock in thriving condition. There were also a few Vanda teres and the rare V. Denisoniana, a fine plant of the rare Schomburgkia Wallisii with three spikes, and a batch of the graceful Oncidium pulchellum, which seems to thrive in the Cattleya house. Passing into the Corridor we noticed Vanilla Pompona bearing several of its large yellow flowers. These, when fertilised, are followed by stout three-angled fruits having the true Vanilla flavour, though owing to the difficulty of drying them they have not the value of the fruits of V. planifolia, the familiar economic species.

Among other interesting things in bloom we noted the graceful Cœlogyne Dayana, Zygocolax Charlesworthii, Diacrium bicornutum, Oncidium leucochilum, superbiens and macranthum, Odontoglossum hastilabium, some well-bloomed Ada aurantiaca, several interesting Masdevallias, and others too numerous to mention. Some good plants of Dendrobium infundibulum were flowering very freely, and it is said that they have not been potted for several years; and we must not omit a little

batch of seedlings of Sobralia Charlesworthii which have been raised to increase the stock of this handsome species.

There is an extensive stock of hybrid seedlings in every stage and in excellent condition, special attention being paid to the Odontoglossum and Cattleya groups, and here several lines of experiment are being followed up systematically, the results of which cannot be foreseen. We noticed many seed capsules from promising crosses, and the houses of seedlings in thriving condition are always interesting. The collection is in excellent condition generally, but, owing to the shortage of labour under the present abnormal conditions, a lot of the routine has to be temporarily done by boys, who, under effective supervision, can soon be taught the details of the work. There is evidence of progress on every hand, and we hope that the time is not far distant when things will resume their normal condition, bringing with it a further development of Orchid culture.

THE R.H.S. RED CROSS SALE.—At the R.H.S. meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on June 20th, a lot of books and pictures that have been sent in for the Red Cross Sale, to be held there on June 27, 28, and 29, were on view in the Orchid annexe. Among works devoted to Orchids we noticed a copy of Bateman's "Monograph of Odontoglossum" and his "Century of Orchidaceous Plants," Miss Woolward's "Masdevallia," sets of "Reichenbachia" and the "Orchid Album," Cogniaux and Goossens' "Dictionnaire des Orchidées," Thouars' "Orchidées des Iles de Afrique," imperfect sets of Lindenia, French and English editions, Reichenbach's "Orchidaceæ Mediæ Europæ," the first 18 volumes of the *Orchid Review* and the *Orchid Stud-Book*, Williams' "Orchid Grower's Manual," Sander's "Orchid Guide and List of Orchid Hybrids," also a number of Orchid paintings. From the Catalogue, the cost of which has been largely borne by the horticultural trading firms, we note that close upon 500 classes are devoted to Orchids, valuable plants having been presented by Sir George and Lady Holford, Sir Jeremiah Colman, Bart., Mrs. Norman Cookson, Lady Max Waechter, Mr. F. J. Hanbury, Mr. G. F. Moore, Mr. W. G. Groves, Mr. Leopold de Rothschild, Mr. and Mrs. S. Gratrix, Mr. Clive Cookson, Sir Frederick W. Moore, of the Royal Botanic Garden, Glasnevin, Dr. Miguel Lacroze, and other amateurs too numerous to mention. Substantial support is also being given by the trade, valuable contributions having been received from Messrs. Armstrong & Brown, Messrs. Charlesworth & Co., Messrs. James Cypher & Sons, Messrs. Flory & Black, Messrs. J. & A. McBean, Messrs. Mansell & Hatcher, and Messrs. Sander & Sons. It is hoped that the deserving War Charities, the British Red Cross Society and the Order of St. John, will derive a substantial benefit from the Sale.

ODONTONIA LAIRESSEÆ.

ELEVEN years ago the artificial genus Odontonia was formed to include the hybrids between Odontoglossum and Miltonia, the occasion being the flowering of a hybrid between O. crispum and M. Warscewiczii in the establishment of M. A. de Lairesse, of Liege. It was called O. Lairesseæ, and received an Award of Merit from the R.H.S. in June, 1905. Odontoglossum crispum is said to have been the seed bearer, and the annexed

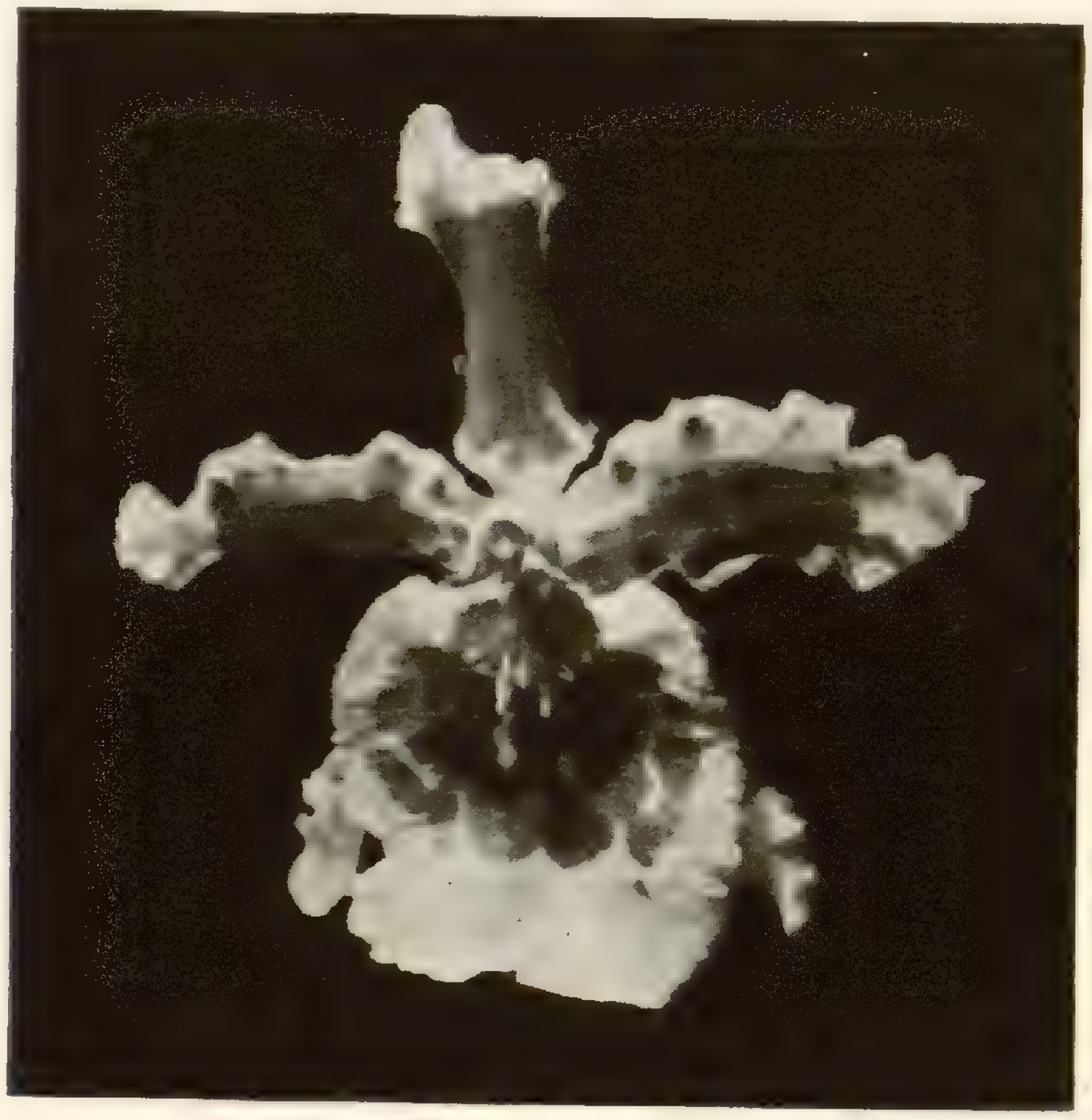

Fig. 32. ODONTONIA LAIRESSEÆ.

figure, which represents one of the original flowers, natural size, will show that the influence of the Miltonia parent largely preponderates, the chief differences being found in the larger size and the modified ground colour, the latter containing more white, while the blotches are reddish purple and rather more broken up. The flowers are borne in ample panicles, and fine examples are seen from time to time at our horticultural exhibitions. Miltonia Warscewiczii has since been crossed with other Odontoglossums, resulting in a series of interesting hybrids of considerable decorative value (see *O.R.*, xxiii. p. 293). One of these, called Odontonia Magali-Sander, was raised by Messrs. Sander & Sons, St. Albans, from O. armainvillierense and M. Warscewiczii, flowering for the first time in 1913, and it was from the crossing of albino forms of these two species that the subject of our next figure was derived.

ODONTONIA MAGALI-SANDER VAR. XANTHOTES.

THIS beautiful albino has an interesting history. There is a plant of the rare Miltonia Warscewiczii xanthina in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and this was crossed with the pollen of a fine Odontoglossum armainvillierense xanthotes supplied by Messrs. Charlesworth & Co., Haywards Heath. The result was a good capsule of

Fig. 33. ODONTONIA MAGALI-SANDER VAR. XANTHOTES.

seeds, which were germinated by Messrs. Charlesworth, and the resulting seedlings divided between the two establishments. An inflorescence was sent to us by Mr. Wrigley in August, 1914, and about two months later Messrs. Charlesworth received an Award of Merit from the R.H.S. for a fine plant (*O.R.*, xxii. pp. 286, 337). A flower from the latter is shown in the annexed figure, and it will be seen that the albinism of the parents has been retained, and combined largely with the Miltonia shape, a character which applies to the whole of the seedlings. The ground colour of the flower may be described as cream white, with bars of yellow on the sepals and petals, and a zone of the same colour on the lip, in front of the yellow crest. We recently saw two fine plants in bloom with Messrs. Charlesworth.

CALENDAR OF OPERATIONS FOR JULY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE cold, wet, sunless weather experienced since my last has necessitated the use of fire heat to maintain the night temperatures, especially in the warmer divisions. The use of so much fire heat at this season is exceptional, but the temperatures must be maintained, or harm will accrue through dampness and other causes attributable to a low temperature; and at this season, when everything is starting into growth, it is wise to give a trifle more heat than otherwise, provided sufficient moisture is maintained in the atmosphere. The latter is important, for a too dry atmosphere is as harmful as a too moist one; one breeds insect and other pests, the other black spot and other diseases. An excess of fire heat, however, should be avoided at all seasons.

TEMPERATURES.—The temperatures, watering, ventilation, and atmospheric conditions given in the May number should be continued through the growing season. It is a difficult matter to give an outline even of a general treatment that will be applicable in every case, some localities being so different to others as regards the outside conditions, but considering that the health of the plants depends entirely on the atmospheric conditions of the houses, this matter should have the closest attention.

CATTLEYAS AND LÆLIOCATTLEYAS.—At the present season many of these most beautiful Orchids are in flower, among the former being the lovely species C. Mossiæ, Mendelii, and Warneri in their numerous varieties, and among the latter Lc. Canhamiana, Aphrodite, and many others, in which Lælia purpurata is one of the parents. These primary hybrids will undoubtedly always claim a place in our collections on account of their form, size, and colour. There is great variety among them, as also in the parent species, and if some of the early ones are lost, the crosses can be made again and again from selected parents. It should now be possible to raise an albino of the lovely Lc. callistoglossa from the pure white C. Warscewiczii crossed with L. purpurata alba.

Plants of the whole of this family, as they pass out of bloom, should be afforded a short rest, and the proper time to give new material at the roots, should they need it, is as soon as roots are observed to be pushing from the base of the pseudobulbs. The method, and the material used in repotting, has been given in previous numbers. The whole of this family should be potted firmly, especially in the material now obtainable. The late summer and autumn-flowering members of the group are now growing freely, and, owing to the weather conditions, should be treated liberally and placed in positions where they may receive every atom of light and air on all favour-

able occasions. They must, however, be shaded from strong sunshine, and the newly-potted plants must be watered with extreme caution, neglect of this important matter being one of the causes of failure with this most beautiful family.

ODONTOGLOSSUMS.—The dull moist conditions has been to the liking of these plants, and it is astonishing the progress they have made this season. The house should be freely ventilated on all favourable occasions, the plants shaded from sunshine, and the atmospheric conditions kept continually moist. The compost should be allowed to become moderately dry between each application of water to the roots, as in a temperature like this much harm may accrue should it remain in a saturated condition. The repotting may be continued as the plants arrive at the proper stage of growth, using the same material as advised in previous numbers.

CYPRIPEDIUMS should by this time have all been repotted, but where there are small seedlings in need of more rooting space, they may have attention at any season, using material according to the section to which they belong.

DENDROBIUMS.—Where this genus is grown extensively there will always be some species or hybrids requiring attention as regards repotting. Any plants of the evergreen section, of which D. thyrsiflorum is the best known, may have attention soon after the blooming period is past, and the plants have started new growth. Few plants make better specimens for exhibition than some of these; but one seldom sees them now as they were shown in the past. They delight in a good fibrous rooting material of lasting quality, and should never be overwatered. Whilst making their growth they should be placed in the warmest division, and when the growths are completed they should be rested in an intermediate temperature, and in a dryer atmosphere. There are many beautiful species of this section which are amenable to the same treatment, as D. Farmeri, Dalhousieanum, chrysotoxum, and others.

LEPTOTES BICOLOR is a pretty-terete leaved species, which may be repotted now that the flowering season is past, and the plants are making new roots. It should be treated precisely in the same manner as a miniature Cattleya.

PHAIUS.—The later flowering varieties, both species and hybrids, may now be repotted if in need of new material. They will root well, and grow freely in the compost advised for Calanthes, and they may be potted in the same manner. During this season of growth a decidedly moist atmosphere should be maintained by keeping all the surroundings of the plants frequently damped down.

ONCIDIUMS.—Cool-growing Oncidiums, such as O. Forbesii, crispum, ramosum, Gardneri, concolor, and Marshallianum should be repotted when

the young growths are from two to three inches long. The flowers of these species are produced on arching or pendulous racemes, and for that reason it is preferable to grow the plants in shallow pans, those without holes in the sides for choice. The pans must be well drained, and a compost used of equal parts of AI fibre or osmunda fibre, half-decayed oak leaves, and sphagnum moss, all thoroughly mixed together. Pot the plants rather firmly, and suspend them from the roof of either the Cool or the cool Intermediate house. Water must be sparingly applied until the roots have fairly entered the new material, when the amount might be slightly increased, but the compost must never be allowed to become saturated. Plants of O. macranthum that are developing flower spikes should be supplied liberally with water at the roots whenever they become dry, until the flowers are expanded. The inflorescence should be removed soon after the flowers are fully developed, as they exhaust the energies of the plants very seriously. Those plants which are not flowering may be repotted when the young growths are a few inches long and about to push roots. Ordinary well-drained flower-pots make suitable receptacles.

Oncidium leucochilum should be placed at the coolest end of the Intermediate house, and be afforded little water at the roots, although frequent overhead spraying is beneficial, as the pseudobulbs frequently become more or less shrivelled after the flowering period. Repotting should be done soon after the new growths have started, employing the compost recommended for the other species. Much less drainage will suffice for this species than used for many of the others.

O. Lanceanum, luridum, carthaginense, tetrapetalum, and others of the warm section should also be afforded fresh rooting material, should they require it. This section may be treated in the same way as the cooler section with the exception that these require the temperature of the warmest house.

VANDA TERES.—The flowering period of this species is now over, and those that have attained a great length may be reduced by cutting away the bottom portion. They may be grown as single stems, or five or six pieces may be placed in six inch pots, keeping each piece at equal distances apart. Each stem should be secured to a neat stake, which should be fixed in the pot with broken crocks, filling the pots to about three parts of their depth, with these and surfacing with freshly gathered sphagnum moss. When in full growth these terete-leaved plants should be exposed to direct sunshine and treated to copious overhead syringing several times a day, using tepid rain water. V. teres, whilst making its growth, delights in an abundance of heat, light, and moisture. V. Hookeriana and the hybrid Miss Jouquim should be treated in the same manner. Other terete-leaved Vandas, such as V. Kimballiana, Watsonii, and Amesiana are growing and

rooting freely in a light moist position in the Cattleya house. These should be potted in a similar manner to V. teres, and receive copious waterings at the roots and in the atmosphere until their flowers are about to expand, when a rather drier atmosphere should be maintained.

GENERAL REMARKS.—Since my last notes another Chelsea Show has been and gone, and considering the many difficulties caused by the present abnormal conditions, I think that all who contributed towards it have reason to be satisfied. If Orchids were not as numerous as previously, what was lacking in numbers was made up in quality, and that is the one thing essential from a connoisseur's standpoint. Although under existing conditions it may not be possible to do everything as thoroughly as in normal times, I would urge that no essential cultural detail should be neglected.

ORCHIDS AT BOSTON.

THE Spring Show of the Massachusetts Horticultural Society was held at Boston in March last, and, according to *Horticulture*, under adverse climatic conditions. With unseasonably low temperatures, and snow piled up everywhere, it was almost impossible to transport exhibits except in big heated vans. Notwithstanding this there was a fine exhibition, and a good attendance.

The Orchids were a prime attraction. Much interest attached to a plant in flower under a glass case, of Sophrocattleya Thwaitesii, which won a First-class Certificate of Merit, and a specimen plant of Odontioda Bradshawiæ bearing a spike of sixty-five flowers, for which a Silver Medal was awarded. This and the preceding, as well as a superb collection of rare blooms, came from E. B. Dane, gardener, Donald Mckenzie. A First-class Certificate was given to a noble collection of varieties of Dendrobium nobile in pots, from Walter Hunnewell, gardener T. D. Hatfield. 1st prize for Orchid plant group was won by Mrs. C. G. Weld, gardener W. C. Rust. Calanthe Wm. Murray, shown by Mrs. J. L. Gardner, gardener Wm. Thatcher, made a fine show; long spikes of bloom, white with crimson blotched lip. At the May exhibition some interesting Orchids also appeared, and the following is extracted from the prize list:—

Prizes: Orchids, 200 sq. ft.: 1st, F. J. Dolansky, Gold Medal. Six plants, six varieties: 1st, J. T. Butterworth.

Gratuities: Orchids: Ernest B. Dane.

First-class Certificate of Merit: Prof. C. S. Sargent, Cytopodium punctatum.

Honourable Mention: Walter Hunnewell, Læliocattleya Waban.

DISA GRANDIFLORA AT HOME.

SOME interesting information respecting this beautiful Cape Orchid is given in the fourth volume of Dr. R. Marloth's *Flora of South Africa* (pp. 93-95), under its earlier but inappropriate name of D. uniflora, together with a fine coloured plate, and a photographic illustration showing the plant growing on Table Mountain, at 2,800 feet elevation, on the banks of a rivulet among heaths and Restiaceæ. It is remarked that this beautiful plant well deserved its epithet of "*Pride of Table Mountain*," and that the figure cannot give an adequate idea of it gorgeous colouring and beauty, which, in fact, can be fully appreciated only when seeing the blooms on a cliff, just touched by the early sun, or on the banks of a murmuring brook whose clear waters reflect their glory—

> **"Here the great Disas, hovering o'er the springs,**
> **Gaze with delight upon their crimson wings."**

The couplet is cited from "*Table Mountain*," by A. Vine Hall, and reveals an astonishing amount of poetic license.

The species is said to be fairly frequent on the mountains of the south-western districts, from the Cederbegen to George, growing on the banks of streams and on permanently moist cliffs, flowering from January to March. As a rule the propagation is vegetative, every full-grown plant producing one large and several smaller tubers by means of offsets, which at first look like roots. These regulate the position of the plant with regard to the water level of the stream near which it grows, the new tuber being formed either near the old one, when this finds the water supply during the summer just suitable, or lower down when the soil has become too dry during the growing season, or higher up if the spot has become permanently submerged. The plants do not mind an occasional immersion in water on the banks of streams, but do not grow in water or in swamps.

It has been stated that the plant never bears fruit, owing to the probable extinction of the insect which once assisted in the fertilisation of the flowers, but this is incorrect. Although fruits are rare along streams, they occur often on cliffs, where the large mountain butterfly, Meneris tulbaghia, is free to visit its flowers, this beautiful but shy insect not readily venturing between the banks of streams. In such more exposed localities groups of plants have often been seen all fruiting, as on some cliffs overlooking Campshay. The head of the butterfly mentioned is figured showing one of the pollinia adhering to it.

The brilliancy of the colour is due to the combination of several details of structure. The apex of each epidermal cell forms an elongated dome, and

the cells act consequently like traps of light. The rays of light that reach the base of the cell are, however, not allowed to pass into the inner tissue (mesophyll) of the sepal, being reflected by the concave layer of yellow chromatophores (anthoxanthin) aggregated at the base. The reflected light, in returning to the atmosphere, either directly or after total reflection at the lateral wall, has to pass again through the red sap, hence the light issuing from the apex of each cell consists of pure red and pure yellow rays only, and each cell becomes a luminous spot of this combined colouring.

Occasionally one finds a sport of the plant with yellow flowers. This is due to the absence of the red pigment in the cell sap of the epidermal cells, while the granules of anthoxcyan are still present. A similar combination of two pigments exists in D. ferruginea, hence this species also produces, although rarely a yellow form.

HARDY TERRESTRIAL ORCHIDS.

THESE interesting little plants receive scant attention from Orchidists, probably because they are not epiphytes and do not require the protection of an Orchid house. They seem to form a class apart, and when shown at our horticultural meetings they do not appear before the Orchid Committee, but must be searched for among herbaceous and alpine plants, where a good many pretty little things appear from time to time. Several interesting species of Orchis and Ophrys, and the pretty little Calypso borealis were shown at spring meetings of the R.H.S. by Mr. George Reuthe and others, and at the Chelsea Show Cypripedium japonicum, which is unique in its fan-like leaves, was shown by Mr. Amos Perry, together with the modest C. debile, another Japanese species, and one with clear yellow flowers which may be referable to the Chinese C. luteum. We also noticed examples of the Siberian C. macranthum (sometimes wrongly called C. ventricosum) and its chaste variety album, the familiar C. Calceolus, and two or three of the North American species. Several of the Orchises are very showy when grown under suitable conditions, and at the present time O. foliosa, O. latifolia, and what is often known as O. maculata superba, are making a good display on the Rockery at Kew. The latter is a very puzzling plant, a supposed hybrid between O. maculata and latifolia, but the point has never been cleared up. There are forms of O. latifolia in bloom with both spotted and unspotted leaves, also O. maculata and a very pretty light form in which the markings are pale pink instead of purple, several examples of Serapias Lingua, Gymnadenia conopsea, and a nice clump of Cypripedium Reginæ. A little clump of C. macranthum

album, which, with the type, has been established on a western aspect, has borne several blooms, which Mr. Elwes has described as the choicest thing on the whole rockery.

On the remarkable Rockery of Sir Frank Crisp, Bart., Friar Park, Henley, we saw a strong clump of Orchis maculata alba, about two feet high, bearing five long spikes of pure white flowers. There were also examples of the type, of O. latifolia, Gymnadenia conopsea, and, what was particularly interesting, a little clump of six Cypripedium japonicum established at the foot of a large piece of stone. How long it has been there we cannot say, and it was not in bloom, but it is well known as a difficult subject to cultivate, and we should like to hear if any of our readers have been successful with it, and under what conditions.

Hardy terrestrial Orchids, writes Mr. H. J. Elwes in "Notes from a Cotswold Garden" (*Gard. Chron.*, 1916, i. p. 329), are usually supposed to be difficult to grow, and still more so to keep, but if people would give them a little of the care and skill that they give to hot-house Orchids we should soon find out the secrets of their life history. I have managed to keep alive for sixteen years and to flower several times one of the rarest and prettiest of the Cypripediums, namely, C. guttatum, which I found in the pathless forests of the Altai mountains in 1899; and last year I had some lovely varieties of C. ventriocosum, which is much more vigorous and striking. But at present I do not know how to treat them, or where to plant them, and it seems very much a matter of chance whether most of these Cypripediums live or die. I have got a fine form of C. Calceolus which I brought from Arctic Norway in 1905 still flourishing, though experience of other plants from so far north led me to expect exactly the contrary. But this is just what makes hardy Orchid so interesting; one never knows what to expect. Who would believe until they saw it, as I did at Scampston Hall recently, that the Shetland Orchid, Orchis incarnata, which also thrives admirably at Colesborne, would grow side by side and in similar conditions with O. foliosa from Maderia, Aceras hircina from Switzerland, and some of the Algerian Ophrys, which Mr. St. Quintin finds hardier than the same species collected on the Riviera 500 miles further north? This gentleman is probably the most skilful grower of these plants in England, and if he will give us the benefit of his experience in print he will confer a great benefit on others.

THE ORCHIDS OF ITALY is the title of an interesting article by Mr. W. Herbert Cox, which recently appeared in *The Garden* (1916, i. p. 240), illustrated by figures of Serapias Lingua and Epipactis latifolia. The author mentions having found as many as thirty-eight varieties among the hills round Florence.

ODONTOGLOSSUM CHIRIQUENSE.

ONE of the rarest and most interesting Orchids offered at the Red Cross Sale, held at the Royal Horticultural Hall, Westminster, is Odontoglossum chiriquense, presented by W. G. Groves, Esq.,

Fig. 34. ODONTOGLOSSUM CHIRIQUENSE.

Holehird, Windermere, where is has been one of the gems of the collection for a number of years. Its history is given at pp. 49, 50, of our seventh volume, and the annexed figure represents the plant which received a Silver Flora Medal from the R.H.S. in July, 1898, in recognition of its excellent culture (*O.R.*, vi. p. 255). The plant was on a teak raft, three feet long by two feet broad, and had several leading growths and two strong spikes, with an aggregate of sixty-

three flowers. The plant, Mr. Groves informed us, was grown under ordinary cool treatment, and the raft covered with living sphagnum moss, which was kept constantly moist, and nourished a crop of small sundews (Drosera rotundifolia). The flower spikes of the latter may be seen in the illustration with the aid of a lens, and are much clearer in the original photograph. In the following year the plant received a Gold Medal and a Cultural Certificate at Manchester, and in 1902 it excelled itself, for Mr. Groves sent us a photograph showing six spikes, nearly three feet high, and bearing an average of thirty flowers each, the individual blooms being as large as a five shilling piece. There were eight spikes, but one succumbed to the attacks of a slug, and the other pushed up when the flowers of the rest were beginning to open.

The species was originally discovered by Warscewicz on the Cordillera of Chiriqui, at 8000 to 9000 feet elevation, and was described from dried specimens (Rchb. f. in *Bot. Zeit.*, 1852, p. 692), being introduced to cultivation thirty or more years later by Messrs. Sander. It is allied to O. coronarium, Lindl., but is readily distinguished by its larger, very undulate flowers, which are red-brown in colour, with a yellow lip. It is a rare and striking species. The plant has been acquired for Kew. R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting after the Chelsea Show was held at the Royal Horticultural Hall, Vincent Square, Westminster, on June 6th, and brought together a moderate display of Orchids, the awards consisting of six Medals and two Awards of Merit.

Orchid Committee present:—Sir. Harry J. Veitch (in the Chair), J. O'Brien (Hon. Sec.), de B. Crawshay, Gurney Wilson, S. W. Flory, C. Cookson, J. Charlesworth, Sir Jeremiah Colman, Bart., Stuart H. Low, F. J. Hanbury, P. Ralli, E. R. Ashton, Walter Cobb, C. H. Curtis, and R. A. Rolfe.

AWARDS OF MERIT.

ODONTOGLOSSUM LAMBARDEANUM GATTON PRINCE (Vuylstekeæ × cœruleum).—A handsome hybrid, shown as of unrecorded parentage, but recognised by the Committee as a form of O. Lambardeanum. The plant bore a spike of six fine flowers, with large dark claret-purple blotches on a white ground. Exhibited by Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier).

WILSONARA INSIGNIS (Oncidioda Charlesworthii × Odontoglossum illustrissimum).—A striking hybrid, most resembling the Oncidioda parent

in general character, the sepals and petals being oblong-lanceolate, and deep carmine-rose, and the spreading lip 3-lobed, and lilac, with a bright purple-red blotch in front of the yellow crest and base of the lobes. The column is short with entire lilac-coloured wings. Exhibited by Messrs. Charlesworth & Co.

OTHER EXHIBITS.

Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Creswell), staged a fine group, to which a Silver Flora Medal was awarded. It contained good examples of Læliocattleya Aphrodite, Canhamiana, Fascinator, bletchleyensis, Ballii, and Fascinator-Mossiæ, a few Cattleya Mossiæ, several good Odontoglossum crispum, white and blotched, three O. cordatum, Lycaste macrophylla and aromatica, the latter with 18 deep yellow flowers, Odontioda chelseiensis, Miltonia vexillaria, and others.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed six finely-grown plants of Cypripedium Lawrenceanum Hyeanum, the best with six flowers, forming a very charming little group.

Col. Stephenson R. Clarke, C.B., Borde Hill, Cuckfield, Sussex (gr. Mr. Gillett), sent Læliocattleya Fascinator The Bride, bearing three white flowers, with a tinge of blush on the lip, and a pale yellow throat.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent two forms of Læliocattleya Cowanii, one pale yellow with maroon-purple lip, the other of salmon-pink tint.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group of well-grown plants, including three beautiful Odontoglossum eximium xanthotes, O. e. albiflorum, without the yellow spots, O. Phyllis (Ianthe × eximium), of the Black Prince type, a very fine O. Dora, several fine Miltonia Charlesworthii and M. vexillaria Lyoth, Lælia purpurata Latona, pure white, Læliocattleya Canhamiana and Aphrodite, Masdevallia Harryana, Odontioda Alcantara, O. Hermione, O. Bradshawiæ with a very fine panicle, Cattleya Mossiæ and var. Wageneri, and others (Silver Flora Medal).

Messrs. Flory & Black, Slough, staged a small group, including Læliocattleya Aphrodite magnifica, a very fine form with a white throat to the lip, Lc. Gladiator, Odontoglossum eximillus, and Cattleya Mossiæ McMorlandii, a very fine lilac-coloured form which has been known for fifty years and received a First-class Certificate in 1879 (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a brilliant group, including good forms of Cattleya Mossiæ, Mendelii, and Schrœderæ, some particularly fine Renanthera Imschootiana with broad deep crimson sepals, Oncidium phymatochilum, Odontioda Charlesworthii, Miltonia vexillaria, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a bright and pretty group,

including a fine specimen of Cattleya Mossiæ with ten spikes, the pure white C. Magali-Sander, some fine Læliocattleyas, Trichipilia Hennisii, Dendrobium cariniferum and infundibulum, Bulbophyllum saurocephalum, Cœlogyne integerrima, Odontonia Lælia-Sander, some good Miltonia Hyeana, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including Cattleya Mossiæ and var. Reineckeana, a good form of Cypripedium Chamberlainianum, Oncidium Kramerianum, and good examples of Læliocattleya Domos, Canhamiana, Aphrodite and Veronica (Bronze Banksian Medal).

At the meeting held on June 20th there was a moderate show of Orchids, and as the Orchid annexe was in use for a display of books and paintings sent in for the Red Cross Sale to be held the following week the Committee sat in the opposite annexe, where most of the Orchid exhibits were staged. The awards consisted of three Medals and a Cultural Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., J. Wilson Potter, E. R. Ashton, Pantia Ralli, Walter Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, C. H. Curtis, Arthur Dye, S. W. Flory, W. Bolton, C. J. Lucas, F. J. Hanbury, and R. A. Rolfe.

CULTURAL COMMENDATION.

LÆLIOCATTLEYA GOTTOIANA IMPERATOR.—An extremely strong plant exhibited under this name, and bearing an inflorescence of five large flowers, having blush white sepals and petals veined with lilac, and the front of the lip purple with dusky veining in the throat, and showing so much of the Lælia purpurata character as to suggest that this must have been one of the parents. Exhibited by Messrs. Sander & Sons.

OTHER EXHIBITS.

Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Creswell), sent Læliocattleya Teucra Bryndir var. (Lc. Martinetii × C. Mossiæ), with pale buff sepals and petals and a purple lip, and Lc. San-Juan (C. Mendelii × Lc. Aphrodite), a promising thing, somewhat resembling C. Mendelii, and having large blush white flowers, with the front of the lip purple, and the disc yellow.

E. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent Læliocattleya Aphrodite Woburn Place var., and having pure white sepals and petals, and a rich violet purple lip; also Lc. brugensis Woburn Place var.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including several good examples of Miltonia Charlesworthii and M. vexillaria, a good form of M. Isabel-Sander, Trichopilia Backhouseana, the

pretty Odontonia Magali-Sander var. xanthotes (figured at page 169), Lælia tenebrosa, Læliocattleya Aphrodite, good forms of Odontioda Patricia and Brewii, O. Joan with a red-purple lip, somewhat resembling Odontoglossum crispum solum in character, though in no way derived from it, three good plants of Odontoglossum armainvillierense xanthotes, two fine blotched Odontoglossums that were at the Chelsea Show a month earlier, and others (Silver-gilt Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including a number of fine Odontoglossums, Anguloa Cliftonii and Ruckeri, Brassia verrucosa, Læliocattleya brugensis (Martinetii × luminosa), Lc. Teucra, and some fine Lc. Canhamiana, Polystachya affinis and the rare P. Hislopii, Dendrobium aggregatum, Masdevallia radiosa, and other interesting things (Silver Flora Medal).

Messrs. Flory & Black, Slough, staged a brilliant little group of Disa Luna, containing about 30 pans with some 80 spikes of flowers; also the original D. Blackii and Langley var., the latter differing in having the dorsal sepal spotted with rose-purple, and the petals almost uniformly crimson. The group also contained two or three good Læliocattleyas (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, sent a few good examples of Læliocattleya Cowanii and Lc. Canhamiana.

Messrs. J. & A. McBean, Cooksbridge, sent Cattleya Mabel (Madame Myra Peeters × Warneri alba), a promising white flower.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on June 1st, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hanmer, A. J. Keeling, D. McLeod, Dr. F. T. Paul, S. Swift, H. Thorp, and H. Arthur (Sec.).

A Large Silver-gilt Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a very fine group, consisting largely of choice Odontoglossums, Miltonias, Cattleyas, Cypripedium Mary Beatrice, &c.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine miscellaneous group, and to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. F. Arnold), for a fine group of choice Odontoglossums.

A Silver Medal was awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for a small group of Cypripediums, in which the C. niveum and bellatulum group was well represented.

Interesting exhibits were also sent by P. Smith, Esq., Ashton-on-Mersey

(gr. Mr. E. W. Thompson); A. J. Oakshott, Esq., Bidston (gr. Mr. Findley); S. Gratrix, Esq., Whalley Range (gr. Mr. Jamieson); Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); H. Thorp, Esq., Middleton; Messrs. Cypher & Sons, Cheltenham; Messrs. Hassall & Co., Southgate; Messrs. J. & A. McBean, Cooksbridge; Messrs. A. J. Keeling & Sons, Bradford; Mr. J. Birchenall, Alderley Edge, and Mr. E. Mitchell, Sale, several of which appear in the award list.

FIRST-CLASS CERTIFICATES.

Miltonia Charlesworthii grandis, a large flower of good colour, with brilliant markings on the lip; M. C. Leeana, a flower of similar merit, and Odontoglossum crispum Aldworthii, one of the finest yet seen, of excellent substance, heavily blotched crimson, and the margins white; from W. R. Lee, Esq.

Lælia purpurata alba Ashworthiæ, a pure white form, of moderate size, and of good shape; from R. Ashworth, Esq.

Odontoglossum eximium Purple Emperor (blotched crispum × armainvillierense), a large flower, of good form and substance, heavily marked with purple; from Dr. Craven Moore.

Cattleya gigas Gratrixiæ, a huge, well-set flower of good colour; from S. Gratrix, Esq.

Odontoglossum merldeneense (percultum × mirum), a large well-set flower, and evenly marked; from A. J. Oakshott, Esq.

Cattleya Mossiæ Reineckiana Haddon House var., an excellent flower, with broad petals; from P. Smith, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Empire Day, Veronique, Conyngham, and Mancunium; O. Hyeanum var. Monitor (Harryanum × luteopurpureum), O. eximium virginale Purity, and O. Fascinator aureum var. Primrose Dame (Adriane × crispum); from Dr. Craven Moore.

Cattleya Mossiæ Arnoldiana Margaret, C. Mendelii Amethyst, and Odontoglossum Red Monarch; from P. Smith, Esq.

Odontoglossum Yula var. Ophelia (Adrianæ Rochford's var. × Lambeauianum), and O. crispum var. Fifinella; from R. Ashworth, Esq.

Cypripedium Harkeyanum var. Petronilla (Chamberlainianum × Godfroyæ); from the Rev. J. Crombleholme.

Cattleya Mossiæ Reineckiana Carter Place var.; from T. Worsley, Esq.

AWARD OF APPRECIATION.

Dendrobium Clio var. Mitchellii (splendidissimum grandiflorum × Wardianum), a seedling flowering for the first time; from Mr. E. Mitchell.

FIRST-CLASS CULTURAL CERTIFICATES.

To Mr. C. Branch, for Miltonia Charlesworthii var. grandis.

To Mr. E. Marshall, for Cypripedium bellatulum Exhims var.

At the meeting held on June 15th, the members of Committee present were: Messrs. R. Ashworth (in the Chair), D. A. Cowan, Dr. Craven Moore, J. Cypher, A. J. Ellwood, J. Evans, P. Foster, W. Gilden, D. McLeod, Dr. F. T. Paul, W. Shackleton, S. Swift, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontioda Schrœderi var. General Joffre (Odm. crispum Luciani × Oda. Bradshawiæ), a very large bright scarlet flower, with white margin, and good flat lip; from Tom Worsley, Esq.

Cattleya Warscewiczii Conyngham, a large well-set flower of good colour; from Dr. Craven Moore.

AWARDS OF MERIT.

Odontoglossum Watsonianum (loochristense × blotched crispum), O. ardentissimum var. Mancunium, O. Doris var. La Belle (Ossulstonii × crispum), O. Aireworth Conyngham var. (crispum × Lambeauianum); all from Dr. Craven Moore.

Cattleya Cowaniæ alba Ashlands var., Odontioda Schroderi marginata, and Disa Luna; from R. Ashworth, Esq.

Odontioda Earl Kitchener (Oda. Bradshawiæ × Odm. Rolfeæ), and Læliocattleya General Brusiloff (Helius × G. S. Ball); from S. Gratrix, Esq.

Cattleya Mendelii var. Rossendale, and C. Mossiæ var. Evelyn; from Tom Worsley, Esq.

AWARD OF APPRECIATION.

Odontoglossum venustulum Gathurst var. (crispo-Harryanum × ardentissimum); from S. Swift, Esq.

CULTURAL CERTIFICATE.

To Mr. E. Rogers, for some fine plants of Phalænopsis amabilis Rimestadiana and P. Sanderiana.

OTHER EXHIBITS.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden); Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. F. Arnold), and Messrs. Cypher & Sons, Cheltenham, for choice miscellaneous groups.

A Silver Medal was awarded to Messrs. Sander & Sons, St. Albans, for a fine group, and a Bronze Medal to the Liverpool Orchid & Nursery Co., Gateacre, for a small select group.

Interesting exhibits were staged by Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); S. Gratrix, Esq., Whalley Range (gr. Mr. Jamieson), including the rare and beautiful Cypripedium Curtisii Sanderæ; O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. E. Rogers); S. Swift, Esq., Wigan; Messrs. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford, and Mr. J. Birchenall, Alderley Edge, several of which appear in the List of Awards.

ORCHID NOTES AND NEWS.

THE July meetings of the Royal Horticultural Society are as follows: The Great Summer Show, to be held at Holland House, Kensington, on the 4th, 5th, and 6th. The Orchid Committee meets at 10.30 a.m., and the Show opens to Fellows at noon, and to the public at 2 p.m. The Coronation Challenge Cup is offered for the best exhibit in the Show, and other awards will be given according to merit. The two following meetings will be held at the Royal Horticultural Hall, Westminster, on July 18th and August 1st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on July 6th and 20th. The Committee meets at noon and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for August 3rd.

The First Prize for six Exotic Orchids at the annual Show of the Richmond Horticultural Society, held at the Old Deer Park on June 28th, was won by Dr. Miguel Lacroze, Roehampton Lane (gr. Mr. Creswell).

A flower of Odontioda Christopher (Oda. chelseiensis × Odm. crispum) has been sent from the collection of R. G. Thwaites, Esq., Chessington, Streatham, by Mr. Hannington. In shape it most approaches the former parent, and the colour is light rose-purple of a fairly uniform shade.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

A.J.S.—Oncidium luridum, Lindl. The Odontoglossum, though technically classed as an imported crispum, is probably a reversion from O. Adrianæ, as indicated by the details of the lip and column wings. The plant supposed to have come with osmunda fibre is probably a Maranta, but indeterminable without flowers. It is more likely to have come with the Orchid.

W.B.—Masdevallia Pourbaixii (caudata × Veitchiana). Læliocattleya Fascinator. The Cypripedium is uncertain, as the exceptionally small lip, with the other details of the flower and the leaf markings, suggest something distinct. Can you trace its history?

F.J.L.H.—A form or Orchis latifolia, Lindl.

ERRATA.

The hybrid called Odontoglossum Baileyi (page 156) to which a Preliminary Commendation was given, should have been called O. Farmeri. It was named after Mr. H. H. Farmer, of Tunbridge Wells. It is said that the former name appeared on the exhibit card by some inadvertence.

Cattleya Naida (page 146) was a printer's error, and should be corrected to C. Naidia.

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OUR NOTE BOOK.

AN interesting article on Colour Standardisation, by Mr. D. F. Kerr, has just appeared in the *Gardener's Chronicle* (pp. 32, 44) and it suggests a discussion on one of the greatest needs of the modern Orchidist, now that the original colours of the species have been so much extended and mixed by hybridisation. It reduces one to despair to give an intelligible account of the new varieties and hybrids that continually appear at our horticultural meetings, and the impressions of those whose chief knowledge of them is obtained by reading would sometimes be interesting. "Colour," Mr. Kerr remarks, "appeals to every human being and belongs of right to all who love joy-giving knowledge. Colour discrimination has its value in every walk of life and in all art and science. Let us classify and name colours on simple, intelligible lines, before the professional experts get hold of the subject and try to lock it up as supposed occult knowledge, and quarrel among themselves over names; for colour is new as a science though old as an art." Some subsequent remarks suggest that the advice comes a little late.

Among other considerations he advances the opinion that every science must be international for its development, and a natural science, especially, can only do its best work through links between naturalists of diverse nations. He believes that any colour chart not based on the Ridgway method would be retrograde, and acclaims it as good news that Dr. Ridgway has agreed to promote a colour chart adapted to a wider use, for the production of a universally-understood colour guide would do many things for us, especially when we should become familiar with it through a little colour-testing practice.

It would appear that what is quite as much wanted as a good colour chart is a system of nomenclature which all could understand, and here there is plenty of scope for improvement. He remarks: "We need all the colour names that are both well-known and accurate, and the less known should be both explainable and explained." But his final remark, "Let us

take warning by the mistakes of botanists, who in floral handbooks have almost invariably failed to add the brief glossary needed to make clear the meanings and origin of specific names," suggests that he has been a little unfortunate in his incursions into this subject.

SALE OF MR. J. GURNEY FOWLER'S ORCHIDS.

THE sale of the Brackenhurst collection, formed by the late Mr. J. Gurney Fowler, for many years Chairman of the R.H.S. Orchid Committee, was held at Pembury, on June 21st and two following days, and was well attended by amateurs and the trade, and realised the sum of £6,200. As is well known, the collection contained a large number of choice things, and for some of these the competition was keen. The top price realised was for a good plant of Cattleya Warscewiczii alba Firmin Lambeau, for which Messrs. Armstrong & Brown paid 210 guineas, Brassocattleya Cliftonii albens coming next at 150 guineas, followed by Odontoglossum memoria J. Gurney Fowler, O. illustra Europa, and Læliocattleya J. F. Birkbeck at 105 guineas each.

Choice Odontoglossums sold well, and included O. crispum solum, bearing a seed capsule, 80 guineas, O. Mars and O. Georgius-Rex, 70 gs. each, O. President Poincare, 60 gs., O. Princess Mary, 52 gs., O. Aquitania and O. Pembury, 50 gs., O. Clovis, 40 gs., O. Pescatorei Charlesworthii and O. Armstrongiæ, 35 gs., O. crispum Fowlerianum, 21 gs., &c. Among Odontiodas we note O. Latona Fowler's var., 90 gs., O. Charlesworthii Fowler's var., 50 gs., O. Cooksoniæ Fowler's var., 45 gs., and O. Coronation, 21 gs.

Of Cattleyas and allies which commanded good prices, Cattleya Mendelii Stuart Low went for 65 guineas, C. labiata alba and C. Hardyana Countess of Derby, 50 gs., C. Luegeæ Fowler's var., 45 gs., C. Oriflamme, 35 gs., C. Transylvania, 22 gs., C. Suzanne Hye de Crom, 20 gs., Læliocattleya Mrs. Evelyn Norrie 40 gs., Sophrolælia Felicia Fowler's var., 40 gs., and Sophrocattleya Sylvia 35 gs. A plant of Cypripedium mirum fetched 45 guineas, Miltonia vexillaria Rev. W. Wilks, 24 gs., M. v. memoria G. D. Owen, 17 gs., and Cymbidium Woodhamsianum Fowler's var., 14 gs., while the unique Dendrobium fimbriatum Fowler's var., with fringed petals, went for as low as 5 guineas.

STANHOPEA COSTARICENSIS, Rchb. f.—It was inevitable that something further should be heard about Stanhopea costaricensis, Rchb. f. (see *O.R.*, 1913, p. 299), but the information comes in a somewhat unexpected form. A Stanhopea has just flowered at Kew which was sent from Costa Rica by

Mr. C. H. Lankester, which may represent the imperfectly described and long-lost plant. At all events there is a curious sac beneath the hypochil of the lip which gives it the appearance of being bigibbous, and which would indicate an affinity with S. graveolens rather than S. Wardii. The flowers are larger than in either, and the ground colour is yellow, with the purple ring-like spots seen on many of the species, and some purple-brown at the base of the hypochil. And it appears in a new rôle, for Mr. Lankester has sent a photograph to Kew which he suggests is a natural hybrid between S. ecornuta and S. costaricensis. It is remarked that it strongly resembles the former, but the leaf is more robust, and it has short horns and the spotting of S. costaricensis. S. ecornuta is unspotted, and without the horns of the other species. It has all the appearance of being a hybrid with the parentage suggested.—R.A.R.

OBITUARY.

WE regret to learn from our American contemporary, *Horticulture*, that MR. GEORGE SHOEMAKER, Orchid grower to Mr. S. C. Briggs, of Washington, U.S.A., passed away at the George Washington University after having been confined to that institution for less than a week. Death was caused by stomach trouble which necessitated an operation from which he failed to recover. He was twenty-nine years of age, and had been in the employ of Mr. Briggs for ten years. His widow and two children survive him. Mr. Briggs is an old subscriber to the *Orchid Review*.

ORCHIDS AT KEW.—The Orchid houses at Kew are always gay, and, as usual, include a number of very interesting things. The remarkable Coryanthes macrantha has produced another fine bloom, while the allied genus Stanhopea is represented by examples of S. saccata, tigrina, inodora, and eburnea. Near by is a plant of the distinct Grammangis Ellisii, Cycnoches pentadactylon bearing a female flower, a fine plant of Renanthera Storiei, Vanda Parishii, while clumps of Dendrobium regium and Deari have flowered very freely. A plant of Cypripedium Parishii is carrying no fewer than four racemes, and with it are several other summer-flowering species and hybrids. In the Cool house a good plant of Calanthe Dominii, the earliest hybrid Orchid of artificial origin, is bearing a dozen spikes, accompanied by two examples of C. veratrifolia. And here are many hybrid Odontoglossums, with examples of O. Harryanum platychilum, and the usual familiar species, brightened up with plants of Cochlioda Nœtzliana and several of the Odontiodas, while a plant of Pleurothallis hamata, Rolfe, a native of Costa Rica, is blooming very freely. In the Cattleya house also there is a good display of bloom.

ODONTOGLOSSUM CRISPUM LEONARD PERFECT.

THE annexed figure represents a very beautiful variety of Odontoglossum crispum, of which a subdivision was included in the recent Red Cross Sale, as mentioned in the report given at page 198. O. crispum Leonard Perfect was exhibited by Messrs. Sander & Sons at the Temple Show in May, 1906, and was greatly admired. Soon afterwards a division of the plant was sold at the Chillingham Castle Sale for 700 guineas. In

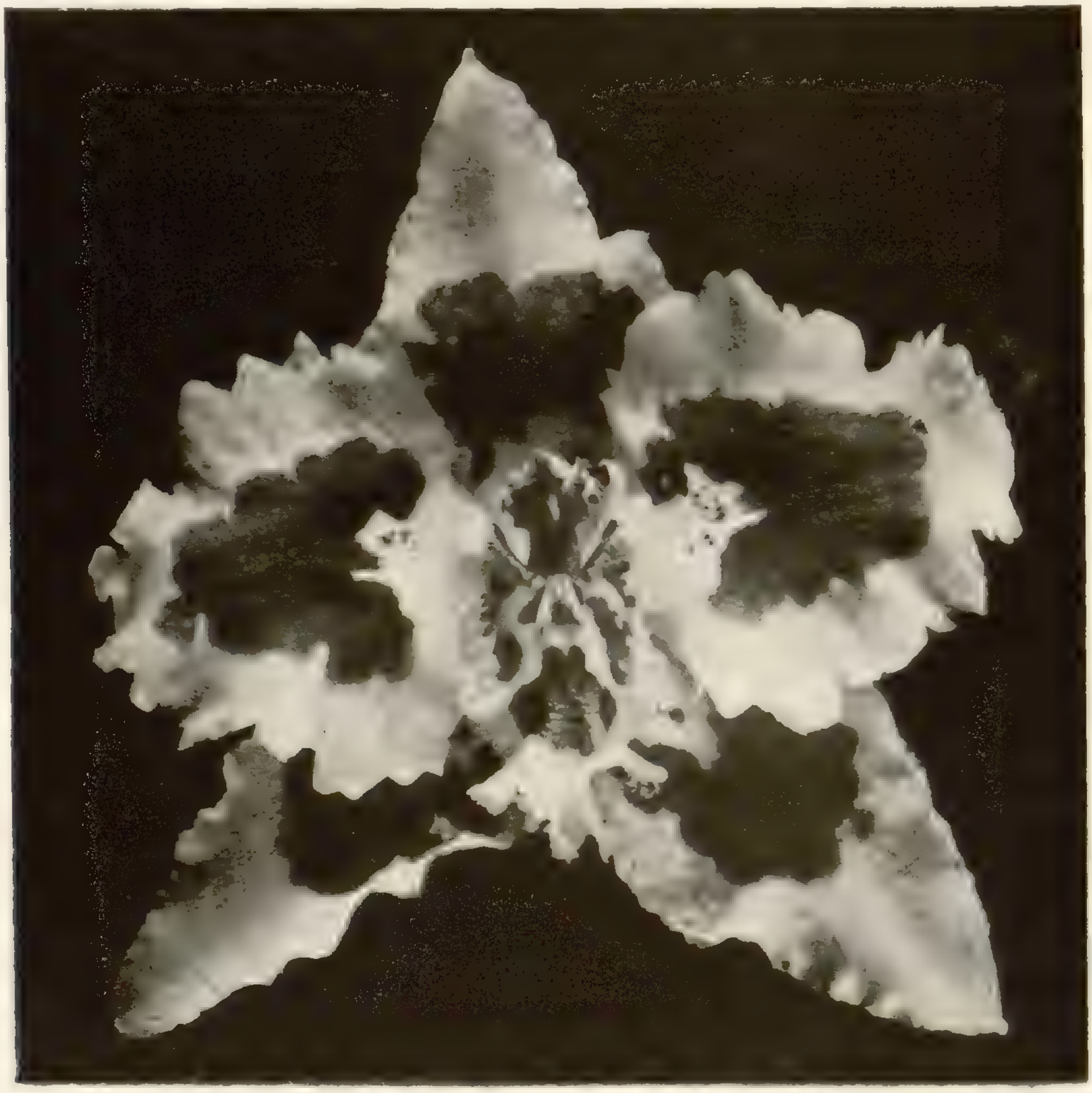

Fig. 35. ODONTOGLOSSUM CRISPUM LEONARD PERFECT.

May, 1908, a plant in the collection of Mrs. Norman Cookson received a First-class Certificate and the Society's Gold Medal for its exceptional culture, and it is a flower from the same source that is here represented. The plant sold the other day at Westminster was presented by Mrs. Cookson. The flowers are large and of excellent shape, and the ground colour white, with large dark cinnamon-brown blotches on the sepals, and on the very broad rounded and undulate petals. It is one of the finest varieties known, and, we believe, originally appeared as an imported plant.

CALENDAR OF OPERATIONS FOR AUGUST.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE general growing conditions in each division must be maintained, as advised in previous Calendars. To achieve this object considerable pains must be bestowed upon the ventilation and shading of the houses, and the watering of the plants. In dull, sunless seasons, like the present, the atmospheric condition of the houses require special care, as the plants cannot thrive under unsuitable treatment. Success depends entirely upon the attention to detail, as regards temperatures, airing, resting, potting, watering, cleanliness, and the various matters which make up our practice. In spite, however, of the adverse weather conditions which we have experienced in the East Riding of Yorkshire, the plants with us have so far made quite satisfactory growth, and with the great amount of humidity in the atmosphere, we have been able to give more air to our plants than usual at this season of the year. The writer is a great advocate of fresh air being admitted to the houses at all possible times, but it should be given with caution during spells of hot, dry weather, as it is an easy matter to allow all the internal moisture to escape, especially if the top ventilators are used to any great extent.

During the present month we often enjoy bright sunshine, and should we be favoured this season the most should be made of it, to ripen and consolidate the new pseudobulbs, this being no less important than the production of satisfactory growth. An ill-ripened plant never produces satisfactory flowers, and is rarely cultivated over a series of years.

CATTLEYAS, Læliocattleyas, and allied subjects should have attention as regards repotting, as previously advised. Plants of C. Warscewiczii (gigas), as they pass out of bloom, should be placed where they may receive more light and air, and at the same time the supply of water to the roots must be considerably reduced. In a short time new roots will be observed to be pushing from the base of the pseudobulbs, when any necessary repotting should be done. Water should be applied to the newly-potted plants with the greatest caution until the roots have freely entered the new material. Sufficient water only to prevent the bulbs from shrivelling should be applied during the winter months, and early in February the plants will commence to grow. A light, dry position close to the glass should be found for them during the winter months.

Cattleyas which produce their flowers during the autumn and winter months are now growing freely, and should have every inducement given them to develop. Light and fresh air are two of the greatest factors in helping these plants to develop their flowers in a satisfactory manner.

When growth is completed, and the flowering season past, the plants should be induced to rest, and be treated as advised for C. Warscewiczii. Lælia anceps and its varieties are now in full growth, and should enjoy all the light possible, with a constant supply of fresh air. This and other species of Mexican Lælia resent a stuffy atmosphere at all times.

DENDROBIUMS.—Although perhaps not so far advanced this year as usual, towards the end of the month many of the deciduous Dendrobiums will be completing their growth, and when this is observed they should be removed to a cooler and drier atmosphere. They should be exposed gradually to full sunshine in order to thoroughly mature the newly-made growths, and receive sufficient water to keep the pseudobulbs plump and the roots healthy. Plants of D. Phalænopsis, D. Dalhousieanum, and others that are in full growth, should receive every encouragement as regards heat and moisture to mature their pseudobulbs. These plants, when grown in small receptacles, require almost unlimited supplies of water, but still, the compost must not always be kept in a saturated condition.

MILTONIA VEXILLARIA AND ITS HYBRIDS.—At the present time there are so many fine things among these plants that they are indispensable, and their flowers can be enjoyed for the greater part of the year. Towards the end of the month those which produced their flowers early in the season will have commenced to grow vigorously, and those in need of fresh rooting material, or larger receptacles, should have attention. The repotting of this family should be taken in hand as soon as ever the young growths have attained a few inches in length, and are about to push new roots. If this can be anticipated so much the better, as there is no danger of their getting broken during the operation. A similar compost to that used for Odontoglossums will answer their requirements, and small receptacles should be used. A moist position in the Intermediate house should be found for them, and they should be grown well elevated up to the glass to prevent their growths becoming drawn.

The autumn-flowering varieties, which are now in bloom, are best left until the early-spring month before any repotting is attempted. M. Rœzlii and its variety alba should be found a position in the warm Intermediate house. The usual precaution as regards the application of water to newly-potted plants is imperative.

ODONTOGLOSSUM CRISPUM AND ALLIES.—It is most difficult at the present time to say what is a true crispum, but this, from a cultivator's standpoint, does not matter, as the majority are amenable to the same treatment. Towards the end of the month, should the weather not be too hot, it is advisable to commence the repotting of these plants so that they may become re-established before the winter months. A compost as

previously advised for this genus will be found quite satisfactory. In most cases where these plants do not grow satisfactorily the cause is attributable to either too much or too little water at the roots, or a close saturated atmosphere.

Maxillarias.—At the present season such Maxillarias as M. luteoalba, grandiflora, Lehmannii, and many others may be repotted, should it be necessary. For such species as M. Sanderiana, and others which produce their flowers in a downward direction, shallow teak wood baskets, should be used. A compost made up of equal parts peat, A1 fibre, and osmunda fibre answers their requirements. The material should be made quite firm, and they should be grown at the warmest end of the Cool house.

Cochlioda Nœtzliana, vulcanica, and sanguinea, with the numerous hybrids raised from them, may be treated in the same manner as Odontoglossums. They succeed in the same material, and may be grown either in pots or shallow pans.

Oncidiums.—Those that had not made sufficient growth last month to be repotted should, if the compost is decomposed, have attention as soon as possible.

Cœlogynes.—Plants of C. cristata are now making rapid growth, and well-established specimens must not be allowed to suffer for want of water. Cool-growing Cœlogynes delight in a damp situation whilst making their growth, and must not be exposed to a dry atmosphere or bright sunshine. The Cœlogynes which revel in a hot, moist atmosphere—of which C. pandurata is, perhaps, the most generally grown—may have new rooting material supplied to them when the young growths are about to push roots. A compost similar to that used for the green-leaved Cypripediums will answer their requirements.

Calanthes.—The deciduous Calanthes will now have filled their pots with roots, and may have an occasional watering with weak liquid manure. The rule should be little and often, and it should be impressed upon those whose duty it is to apply it that no plant can stand strong doses of liquid manure. I am afraid that more plants are injured from the misuses of manures than die for the want of it. As the leaves and bulbs get more matured they should receive more light and air to consolidate their growths, but care must be taken to prevent scorching.

Pleiones, as they complete their growth, should be inured to the light and receive more air than heretofore. They should have sufficient water at the roots to keep the compost moist and the bulbs plump until the leaves fall. When this occurs, and until the flower buds appear, they will need water in very limited quantities, after which the supply should be increased until the flowers are fully developed. After the flowers have faded the plants require sufficient water to keep the pseudobulbs from

shrivelling until they commence to grow in the spring. The cooler-growing species, as P. Hookeriana and P. humilis, must still have liberal supplies of water at the roots until their season's growth is completed.

RENANTHERA IMSCHOOTIANA.—Plants of this brightly-coloured Orchid, having now passed out of bloom, will be pushing new roots from their stems, and the compost may be renewed if at all decayed. They should be potted in the same manner as Vandas, using very small pots. A position close to the glass in the Cattleya house is to their liking.

GENERAL REMARKS.—We shall soon have to anticipate the placing of the plants in their winter quarters, and under the existing circumstances it will be advisable to clean them when possible, so that when the time comes there may be no delay or hindrance to their being satisfactorily dealt with.

During the present month it is a wise precaution to examine the heating apparatus and other things appertaining to the successful working of the houses, to see that they are in thorough repair, and capable of passing through the winter without much fear of accident. It is during times of stress that a breakdown is most likely to occur, and a little attention now may prevent an accident later on, when fire heat cannot be dispensed with.

EPIDENDRUM PHŒNICEUM.—A rare and handsome Epidendrum has just flowered in the collection of J. Ramsay Drake, Esq., Batchwood, St. Albans, which proves to be the West Indian E. phœniceum, Lindl., a species originally described by Lindley, in 1841 (*Bot. Reg.*, xxvii., Misc. p. 57), and soon afterwards figured (*Lindl. Sert. Orch.*, t. 46; *Paxt. Mag. of Bot.*, ix. p. 97, with plate). In the latter work it is remarked: "Messrs. Loddiges, who have introduced so many noble epiphytes to this country, and in whose magnificent collection several new ones develop their flowers every month, imported this very handsome Epidendrum, from Cuba some time in the year 1840, and it bloomed with these gentlemen in the summer of 1841." It belongs to the section Encyclium, and is a near ally of E. atropurpureum, Willd. It has large, ovoid, two-leaved pseudobulbs, and a terminal, occasionally branched raceme of large flowers, with dark red-purple sepals and petals, and a brighter purple lip. It was subsequently collected at St. Jago, Cuba, by Linden, and by Wright, specimens from both being preserved in Lindley's Herbarium. Subsequently it was collected at Fresh Creek, Andros, in the Bahamas, by Northrop, and a specimen cultivated at Hope Gardens, Jamaica, also preserved at Kew, is recorded as a native of the Cayman Islands, these localities somewhat extending its area. A variety vanillosmum was subsequently figured (*Fl. des Serres*, t. 306), to which Lindley added as a synonym E. Grahami, Hook. (*Bot. Mag.* t. 3885), but these are, however, quite distinct. It is interesting to find this handsome species again in cultivation.—R.A.R.

ONCIDIUM MCBEANIANUM.

THE annexed figure represents the handsome Oncidium McBeanianum, which was raised by Messrs. J. & A. McBean, Cooksbridge, from O.

Fig. 36. ONCIDIUM MCBEANIANUM.

superbiens × macranthum, and received an Award of Merit at the R.H.S. Show held at Chelsea in May, 1913 (*O.R.*, xxi. p. 219). The flowers show

most of the character of O. superbiens, and the spikes have the long trailing character of the two parents, so that they have to be trained round sticks when the plants are required for exhibition purposes, otherwise they may be trained along a wire in the house. The plants have now attained their full development, and some very handsome specimens have been exhibited at recent meetings by Messrs. McBean, to whom we are indebted for the loan of the block used to illustrate this article. It is a vigorous and free-flowering hybrid, and Messrs. McBean must be congratulated on raising such a handsome acquisition.

HERBARIA AND THEIR USES.

ON several occasions correspondents have requested particulars of the best method of drying Orchids and arranging them for future reference, and a recent inquiry as to the organisation of a Herbarium suggests that a few remarks on the subject would be useful. Many people like to preserve mementos of their interesting plants, and this often takes the form of paintings, but not every Orchid grower has the necessary time or ability, and the employment of a professional artist entails expense. Again, there are details that cannot be shown in a painting, and yet are permanently preserved in a well dried flower, so that a combination of the two methods forms the ideal system. A method of drying flowers so as to preserve their original character is, from the nature of the case, unattainable, for both shape and colour are generally altered during the process. The method of drying flowers in sand, to preserve the natural shape, does not prevent shrinkage, while greatly increasing the difficulty of subsequent storage, and there is nothing equal to the old system of drying in porous paper and preserving the specimens flat, like drawings.

A Herbarium is a collection of samples, and its extent and arrangement depends upon the taste of the collector and the objects he has in view. In the case of a complete Herbarium, like the great national establishment at Kew, the ultimate object is the preservation of a collection of specimens to illustrate the various forms of plant life and their distribution over the earth's surface, but any more restricted range may be attempted, such as the flora of some particular district, or the collection of one particular group, such as Orchids, with which alone we are concerned. The essential details are identical in each case, and consist in drying, arranging, and mounting the specimens, and finally of protecting them against the attacks of mould and insects.

DRYING consists in placing the materials selected on a sheet of absorbent paper, arranging them to show the details desired as far as possible, and

then pressing them between additional papers, so as to get the water away as quickly as possible. Moderate pressure is necessary, either by the use of a weight or of strapping the sheets in a lattice work frame, and changing the papers as often as necessary. The application of heat facilitates the process, and the more paper used the better. Time and trouble may also be saved by laying the specimens in a folded sheet, and moving this bodily when changing the drying papers. In some cases a longitudinal section of the flower can be made with advantage, or some of the parts may be removed and dried separately, these being preferably put in small unglued envelopes in the final arrangement. In the case of small flowers, one or two should be removed from the inflorescence at the outset and treated in the same way. Of course labels must be written giving the name and any necessary details, with a record of colour or anything that will not be shown by the dried specimen. The arrangement of the specimen can sometimes be improved at the first change of paper.

MOUNTING and arrangement of the specimens will vary according to the end in view. If the object is a classified collection the specimens must be kept on separate sheets of uniform size, so as to permit of subsequent additions in their proper position. The size in use at Kew is 16½ by 10½ inches. The sheets themselves are most conveniently arranged in stout paper covers, suitably labelled and laid on the shelves of a cabinet, so that anything required can be taken out without displacing the others. With such an arrangement the specimens may be left loose on the sheets, though some method of mounting is ultimately desirable to prevent displacement. Both tickets and specimens may be neatly gummed to the sheet, arranging them so that the packets maintain a fairly uniform thickness. Many flowers can be secured in position by a few gum straps, but the more permanent form of mounting is preferable.

Some protection against the attacks of mites and insects is necessary, and this is sometimes attained by placing lumps of camphor or naphthaline in the cabinets, though a more permanent and effective method is to brush the specimens lightly over with a little methylated spirit in which a small amount of corrosive sublimate has been dissolved (the proportion one ounce to a quart), and laying them aside for a short time to dry. They may then be regarded as permanently immune from insect attack. In some cases equal quantities of carbolic acid and corrosive sublimate are added to the spirit, but the former has sometimes a discolouring effect which is objectionable. Of course, corrosive sublimate, is a deadly poison, and the greatest care must be exercised in its use.

These are the essentials of the process, and in the subsequent details of classification and arrangement the great point to be aimed at is facility of reference. And here an alphabetical sequence naturally suggests itself,

though it should be as a temporary expedient. Its great drawback is that it usually separates allied genera and species, so that for serious work a more natural system is generally adopted. The genera Aganisia and Zygopetalum afford a good illustration, for the two are intimately allied, and yet they are separated by the whole extent of the alphabet.

Similar considerations apply in the case of species, and for purposes of comparison it is of the utmost importance to have the allied species of a large genus together, not scattered over several shelves according to the exigencies of an alphabetical arrangement. One may receive a Masdevallia for name, and see in a moment that it belongs to the section Saccolabiata, and if these are together and arranged according to a natural sequence it becomes an easy matter to compare the specimen without being distracted by the numerous species of other sections, besides the saving of time in going through one instead of a dozen or more covers. Completeness is another important consideration. Some species of the section may be missing, but if each is represented by a sheet on which the name, reference, native country, and affinity are written one can see at once where to look when any specimen cannot be matched. On the other hand, species that may not have been named and described will be in their proper place awaiting the time when they can be dealt with. A useful motto for classification would be, "A sheet for everything and everything in its place."

In a large and intricate group like Orchids the work entails constant and almost undivided attention, and none but the experienced can realise the difficulties involved, hence a little not unnatural resentment against the action of Reichenbach in sealing up his Herbarium against his contemporaries and successors for a period of a quarter of a century; and the difficulty is often aggravated by the absence of dimensions from the descriptions, and other imperfections, which render many of them unintelligible as a method of identification, hence the importance of being able to consult the specimens themselves. The Herbarium of his successor, Dr. Lindley, is constantly accessible, and the significance of the fact may be seen in an article on Epidendrum lividum on page 197. We have not yet had an opportunity of testing Reichenbach's Herbarium in the same way. It is an apt illustration of the utility of Herbaria, and, incidentally, of the need for some organisation for protecting them from abuse, but this is outside the scope of the present article.

The importance of a Herbarium consists largely in the fact that it becomes a standard of reference, and its utility constantly increases with the addition of fresh materials. Its value is proportionate to the completeness of its contents and the accuracy with which they are named. It should contain examples of every described species, and as new species are

constantly being described an authentically named specimen of each should be deposited. Orchids are frequently described from plants existing in gardens, and the materials used constitute what is known as the "type," and all specimens subsequently obtained from the same plant would have the same value as the original type. If no specimen is preserved and the plant subsequently dies the type is lost. Many species were described by Reichenbach from materials sent to him for name by growers in this country, and the specimens would be dried and placed in his Herbarium. In many cases materials from the self-same plant, or subdivisions of it, were subsequently preserved at Kew, and these have the same value as the original type, and may even be more complete. The unfortunate thing is that *all* could not be so preserved. Identical plants from the same importation have an almost equal value, though in such cases their actual identity may require confirmation. Even an author's own specimens may not always be correct, as witness the case of Epidendrum tessellatum alluded to in the following article.

The utility of a Herbarium is greatly enhanced by a collection of drawings, which are generally arranged separately, though analytical sketches, and the smaller and less elaborate drawings, are more useful if arranged with the specimens themselves; the others can be indicated by a system of cross references on the Herbarium sheets, which can, of course, be extended to include figures of plants included in published works. And the organisation of a Library of suitable books is naturally concerned, but respecting this nothing need be said. A Herbarium is a classified collection of the world's flora, which affords a sufficient indication of its importance and the interost of its contents. R.A.R.

EPIDENDRUM LIVIDUM.

A RARE and curious Epidendrum has just flowered in the Royal Botanic Garden, Glasnevin, of which Sir Frederick Moore has no record of origin. It proves to be E. lividum, a species described by Lindley, in 1838 (*Bot. Reg.*, xxiv. Misc. p. 51), being based on a plant which flowered with Messrs. Loddiges, and which they had imported from Colombia. Its history has since been much confused. Lindley afterwards (*Fol. Orch.*, Epidendr. p. 22) enumerated it as a synonym of the Central American E. tessellatum, Batem., though a few pages earlier in the same work (p. 5), he had placed it in another section, with E. articulatum, Klotzsch, as synonymous. The latter was described a few months after E. lividum (*Allg. Gartenz.*, 1838, p. 297), being based on a specimen which flowered in the Berlin Botanic Garden, which is said to have been sent from La

Guayra by Moritz, and which is clearly identical with E. lividum. E. tessellatum, however, is distinct. It was described by Bateman (*Bot. Reg.*, 1838, Misc. p. 7) from a plant which flowered at Knypersley, and which is said to have been sent from Guatemala by Mr. G. Ure Skinner. It was afterwards figured in the *Botanical Magazine* (t. 3638). The materials in Lindley's Herbarium afforded a clue to the confusion. To the sheet of E. tessellatum is added a sketch from a plant in the collection of Mr. George Barker, of Birmingham, and dried specimens collected at Oaxaca, S. Mexico, by Galeotti. These are correct, but, unfortunately, he also added two inflorescences received from Mr. S. Rucker which are identical with E. lividum. And on the sheet containing the latter he has added a dried specimen collected at Santa Martha, by Purdie, but wrongly added the name E. tessellatum, under which the specimen is erroneously cited. The two species are very similar in general appearance, but the Colombian plant is readily distinguished by the absence of side lobes to the lip, a difference recognised by Lindley when he placed the two in different groups, and it is curious that he failed to notice his own confusion. E. lividum has shortly fusiform pseudobulbs, bearing two or three narrowly oblong leaves, and spikes of small flowers, the sepals and petals tessellated with brown on a green ground, and the lip pale yellow, with a rounded and very undulate front lobe, three rows of tubercules up the centre, and some white pubescence behind. R.A.R.

THE RED CROSS SALE.

THE R.H.S. Red Cross Sale, of which particulars were given at page 167, was held at the Royal Horticultural Hall, Westminster, on June 20th and two following days, and was very successful, most of the lots offered being disposed of. A large number of Orchids had been presented by numerous donors, in many cases divisions of the original certificated plants, and some good prices were obtained, though a number of the commoner ones went for rather low figures. Prices naturally varied according to the size of the plants. The eighteen choice things presented by Sir George and Lady Holford realised as much as £275, these including Brassocattleya The King, 50 guineas, Læliocattleya Golden Beauty, 30 gs., and Miltonia vexillaria Snowflake, 25 gs. Other plants which sold well were Cattleya Warscewiczii Low's var., 32 gs., Cypripedium Lucifer, 26 gs., Cattleya Trianæ Mooreana, 15 gs., Cypripedium Alcibiades magnificum, 14 gs., and Odontioda Bradshawiæ, part of the plant for which Sir Jeremiah Colman gained the Silver Cup at the International Horticultural Exhibition held in New York in 1913, 14 gs.

Some of the Odontoglossums sold well, O. Pescatorei Lady Holford going for 12 guineas, and O. crispum Magnum Bonum and Raymond Crawshay for 14 gs. each. Among other varieties of O. crispum we note that Queen Empress and Leonard Perfect fetched 11 gs. each, Rosy Queen, which gained a medal at the last Ghent Quinquennial as the best unspotted crispum in the Show, 10 gs., Imperator and Franz Masereel, 9 gs. each, Venus, 7½ gs., and Milicent and xanthotes each 5 gs. At the latter price went a fine plant of O. chiriquense (figured at page 177), while a smaller one sold for 3 gs.

Among Cattleyas, 10 guineas was paid for C. Fabia alba, while C. Fabia ignescens fetched 7 gs., C. Magali Sander 8½ gs., C. Snow Queen, 7½ gs., C. Brenda, 7 gs., C. Cooksoniæ alba, 6½ gs., C. Cowaniæ alba, 6 and 7 gs., C. Mossiæ Wageneri, 5 gs., C. Warscewiczii Frau Melanie Beyrodt 3½ gs., and a hybrid from C. Myra Peeters × Warneri alba, 7 gs.

Among other showy things, Læliocattleya Golden Glory and Cymbidium Lowianum Pitt's var. fetched 10 guineas each, the rare C. Parishii Sanderæ, 7 gs., Miltonia Charlesworthii in bloom and Brassocattleya Cliftonii, 7½ gs. each, Miltonia vexillaria memoria Baron Schröder, 7 gs., Odontioda Bradshawiæ Cookson's var., 5½ gs., Cypripedium Alcibiades illustre and C. Carola 4 gs. each, Læliocattleya Helius and Sophrocattleya Pearl, 3½ gs. each, Dendrobium Dalhousieanum luteum 4 gs., D. fimbriatum oculatum Westonbirt var. 3 gs., and D. illustre, 2 gs.

Among remarkable botanical Orchids, Zygopetalum Roeblingianum, part of the original plant from the Wigan collection, sold for £2, Vanda Sanderiana, 35s., Meomoorea irrorta and Bulbophyllum dichromum, 24s. each, Anguloa Cliftonii, 13s., Cirrhopetalum Mastersianum, 21s., C. longissimum, 12s., C. Amesianum, 7s., and Cœlogyne Lawrenceana, 5s. We also note that 25 plants of the hardy Orchis foliosa sold for 20s., while a batch of a dozen Cypripedium Maudiæ fetched 5 guineas.

Some of the Orchid books sold well, a set of the *Orchid Album* going for twelve guineas, one of Goosens' *Dictionnaire Iconographique des Orchidées* for £7 17s. 6d., *Reichenbachia*, 6 gs., *Lindenia*, £5 10s., The Genus Masdevallia, £4 1s., Reichenbach's *Orchidaceæ Mediæ Europeæ*, £2 5s., Bateman's *Monograph of Odontoglossum*, £2, his *Second Century of Orchidaceous Plants*, 1g., Thouars' *Orrchidées de Iles Afrique*, 32s. 6d., the first eighteen volumes of the *Orchid Review*, £4 14s. 6d., the *Orchid Stud-Book*, 5s., Williams' *Orchid Growers' Manual*, ed. 7, 15s., &c. We also note that a copy of Edward's *Botanical Register*, 33 volumes, in which so many Orchids were figured by Lindley, fetched £28. The set of over 200 Orchid paintings presented by John Leeman, Esq., was purchased for Kew for £20. Altogether it is estimated that the funds of the British Red Cross Society and the Order of St. John will benefit to the extent of nearly £2,000.

ORCHIS MACULATA ALBA.

AT page 178 we alluded to a strong clump of the chaste and beautiful Orchis maculata alba, about two feet high, bearing five long spikes of pure white flowers, on the remarkable rockery of Sir Frank Crisp, Bart., at Friar Park, Henley, and now by the courtesy of the Editor of the *Garden*, we are able to illustrate it by a photograph, which shows well its character.

Fig. 37. ORCHIS MACULATA ALBA.

The flowers are of the purest white. As regards its culture and history we may reproduce the accompanying note. "O. maculata is of the easiest possible culture, and only craves an open situation on a border or rock garden where its bulbs will remain undisturbed when at rest. A carpet of some dwarf-growing alpine affords a useful protection from disturbance, and seedlings are occasionally found in such situations, sometimes escaping detection until they throw up a spike. The white form is occasionally found in a wild state among plants of the type, and one such was grown in the collection of the late Sir Trevor Lawrence, Bart., at Burford, many

years ago. It should be added that the Friar Park plant, which is exceptionally strong, is without the usual dark blotches in the leaves, a character which I believe accompanies the absence of purple markings from the flowers in this species. It is a charming variety.—R. A. ROLFE." It should be added that the fern-like foliage included in the photograph is that of Corydalis cheiranthifolia, which was growing immediately behind the Orchis.

SOCIETIES.

ROYAL HORTICULTURAL.

OWING to the abnormal conditions caused by the war, the Great Summer Show, which was held at Holland House, Kensington, on July 4th, 5th, and 6th, was on a somewhat reduced scale, and the usual functions were suspended, but the Show suffered nothing in respect of quality, and many excellent exhibits were staged. The weather was fine throughout, and there was a good attendance, though the visitors were not as numerous as on some former occasions. Some excellent Orchids were shown, but the groups were restricted in size, and the awards consisted of two Gold Medals, three Williams Memorial Medals, a Silver Lindley Medal, and three other Medals, one First-class Certificate, four Awards of Merit, and two Cultural Commendations.

Orchid Committee present:—Sir Harry J. Veitch (in the Chair), J. O'Brien (Hon. Sec.), F. M. Ogilvie, Walter Cobb, Arthur Dye, H. G. Alexander, S. W. Flory, J. W. Potter, W. Bolton, J. Cypher, R. A. Rolfe, W. H. Hatcher, C. J. Lucas, E. W. Ashton, R. B. White, Gurney Wilson, R. G. Thwaites, Stuart H. Low, F. J. Hanbury, Pantia Ralli, and Sir F. W. Moore.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA ISABEL-SANDER BLENHEIM VAR. (C. Mossiæ Wageneri × Lc. Canhamiana).—An exceptionally fine form, having the broad sepals and petals white, tinged with lilac, and the front of the lip ruby purple, with a yellow throat. Exhibited by the Duke of Marlborough, Blenheim, Woodstock (Orchid grower, Mr. J. Smith).

AWARDS OF MERIT.

BRASSOCATTLEYA ILENE LOW'S VAR. (Bc. Maroniæ × C. Dowiana).—A finely-shaped flower, having primrose yellow sepals and petals flaked with rosy lilac, and the lip rather darker, with a large clear yellow centre. Exhibited by Messrs. Stuart Low & Co.

LÆLIOCATTLEYA ISABEL-SANDER GATTON QUEEN (C. Mossiæ × Wageneri × Lc. Canhamiana).—A beautiful variety, having clear white

sepals and petals, and the front of the lip bright violet-purple, with some yellow in the throat. Exhibited by Sir Jeremiah Colman, Bart.

MILTONIA JOHN BARKER (parentage unrecorded).—A beautiful light variety, having the base of the petals tinged with rose, and a very dark ruby-purple mask at the base of the lip. Exhibited by Messrs. Sander & Sons.

MILTONIA ISABEL-SANDER CHARLESWORTH'S VAR. (Hyeana × Roezlii). —A charming thing, having large white flowers, with the base of the petals light purple, and a number of rosy lines radiating from the base of the lip. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATIONS.

CIRRHOPETALUM ROBUSTUM.—To Messrs. Sander & Sons for a very fine specimen bearing twelve umbels of flowers, which are more or less stained with brownish red on a yellow ground.

DENDROCHILUM FILIFORME.—To Mr. F. W. Thurgood, gardener to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for two beautifully-grown plants, covered with graceful drooping spikes of yellow flowers.

LINDLEY MEDAL.

EPIDENDRUM PRISMATOCARPUM.—To F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. W. Balmforth), for a magnificently-grown specimen of this well-known Orchid, about four feet across and bearing forty-six spikes of flowers. There were originally forty-seven, but one of them met with an accident.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), was the only amateur who contributed a group, and it was excellent in every respect, and was deservedly awarded a Gold Medal. Among the numerous showy things it contained were about a dozen Disa Luna, the brilliant Cattleya Warscewiczii King Edward VII., C. intermedia alba, some beautiful Læliocattleyas, including a pretty yellow form derived from Lc. Hippolyta × Cattleya Mossiæ Wageneri, some beautiful Odontoglossums, Odontioda Papilio, O. Lady Colman, and other brilliant forms, with the striking Brassia longissima, &c., while in the rarer and botanical section we noted the charming little Cirrhopetalum miniatum and C. citrinum, the Australian Sarcochilus Ceciliæ with six spikes of pink flowers, two good Nanodes Medusæ, the remarkable Bulbophyllum longisepalum, Physosiphon Loddigesii, and other interesting things. Vuylstekeara Colmanii (M. Warscewiczii × Odontioda Bradshawiæ) is a pretty novelty with rosy red flowers, and Cœlogyne gattonensis (speciosa × Sanderiana), and Epidendrum fragrocarpum (fragrans × prismatocarpum) were also interesting.

Sir Mervyn Buller, Broomhill, Sprotton (gr. Mr. C. Kench), sent Vanda

cœrulea Killarney, a beautiful variety in which the blue reticulated veinings on the flower are very dark, and the lip intense violet-blue.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group of finely-grown Orchids, to which a Gold Medal was awarded. The centre consisted of a cluster of the beautiful Miltonia Charlesworthii, while behind and at the sides were some excellent Odontoglossums and Odontiodas, among the latter being diverse forms of the variable O. Brewii, the bright scarlet O. Chantecleer, and others, some good Læliocattleyas, white Cattleyas, and Epidendrum vitellinum, &c., with several good plants of Trichopilia tortilis in front. We also noted the brilliant Odontonia Charlesworthii, with good examples of Brassavola Digbyana, Dendrobium acuminatum, regium, and the rare D. purpureum, with heads of purple flowers, Epidendrum aromaticum, Broughtonia sanguinea with six spikes, the charming little Habenaria rhodochila, the rare Warrea tricolor, and other interesting things.

Messrs. Stuart Low & Co., Jarvisbrook, staged a fine group, to which a Williams Memorial Medal was awarded. It contained some fine Cattleya Mossiæ, with the white varieties Reineckeana and Wageneri, examples of C. Warscewiczii, C. Warneri alba, the brilliant Læliocattleya Teucra Glorita and others, some good Odontoglossums, Rhynchostylis retusa, Dendrobium Victoria-Regina, Brassia verrucosa, Cypripedium caudatum, Vanda cœrulea, Miltonia vexillaria, Biferenaria tyrianthina, the rare Trichoglottis Dawsoniana, &c., while high up on either side were groups of Phalænopsis amabilis intermixed with the brilliant Renanthera Imschootiana, the whole being very effectively arranged.

Messrs. Mansell & Hatcher, Rawdon, East Yorks, received a Williams Memorial Medal for an excellent group, in which Phalænopsis amabilis was effectively arranged in a central bank, with some good Odontoglossums, these being brightened with scarlet Odontiodas, Miltonia vexillaria and some good Cattleyas and Læliocattleyas. Cattleya Helen-Langley (Dusseldorfii Undine × Myra Peeters) was an albino of good shape, and we noted also examples of Masdevailla calura and muscosa, Oncidium Harrisonianum, Cypripedium callosum Sanderæ, &c.

Messrs. Sander & Sons, St. Albans, also received a Williams Memorial Medal for a brilliant group, the centre of which consisted of well-flowered plants of Cattleya Warscewiczii, Læliocattleyas, and Odontoglossums, with examples of Anguloa Cliftonii and brevilabris, which were imported together, Maxillaria venusta and Sanderiana, Vanda Parishii, the yellow Aërides Houlletianum Sanderæ, Cœlogyne Mooreana, Lycaste Deppei, Cochlioda vulcanica, Sophrocattleya Doris var. Atalanta with two scarlet flowers, some good Miltonias, Bulbophyllum leopardinum, and other interesting things.

Messrs. J. & A. McBean, Cooksbridge, received a Silver-gilt Flora Medal for a good group, containing the handsome Oncidium McBeanianum, several fine Odontoglossum Hyeanum, O. eximium xanthotes, examples of O. crispum, and others, Masdevallia Harryana, the charming white Miltonia vexillaria Queen Alexandra, Cattleya Mabel (Myra Peeters × Warneri alba), and other good whites, a few brilliant Odontiodas, and other good things. [A figure of Oncidium McBeanianum, reproduced from a photograph, is given on page 193].

Mr. Harry Dixon, Wandsworth Common, received a Silver Flora Medal for a good group, including examples of the showy Cattleya Warscewiczii, Phaius bicolor, Oncidium crispum, Odontoglossum armainvillierense, Cypripedium callosum Sanderæ, Cymbidium Lowianum concolor, Masdevallia Chimæra, Læliocattleya Cowanii, and a few other good things.

Mr. G. F. Waters, Balcombe, received a Silver Banksian Medal for a good group, including forms of Odontoglossum crispum, Miltonia vexillaria, Dendrobium fimbriatum oculatum, Cypripedium bellatulum and niveum, Vanda teres and cœrulea, Oncidium leucochilum, Læliocattleya Canhamiana, Odontioda Charlesworthii, and others.

Messrs. Armstrong & Brown, Tunbridge Wells, staged an interesting little group of Odontoglossums and Odontiodas, with the handsome Miltonia J. Gurney Fowler, a fine M. vexillaria with racemes of six and eight flowers, Cœlogyne pandurata, a pretty white Cattleya Mendelii, and a few others.

In the magnificent group of Herbaceous Plants staged by Mr. Amos Perry, Enfield, which gained the Coronation Cup as the best exhibit in the Show, we noted several fine plants of Orchis foliosa, Cypripedium Reginæ, and the North American Habenaria dilatata.

The usual fortnightly meeting was held at the Royal Horticultural Hall, Westminster, on July 18th, when there was an average display of Orchids, and the awards consisted of three Medals, one First-class Certificate, and three Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the chair), J. O'Brien (hon. sec.), R. A. Rolfe, J. Wilson Potter, Pantia Ralli, T. Armstrong, Walter Cobb, J. Charlesworth, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, and Sir Jeremiah Colman, Bart.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA MOMUS (Lc. rubens var. Lambeauiana × C. Octave-Doin).—A magnificent flower, excellent in shape and substance, with broad, bright rose sepals and petals, and a ruby crimson lip with a lilac margin and some yellow lines in the throat. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CATTLEYA HESTA (Suzanne Hye de Crom × Warscewiczii Frau Melanie Beyrodt).—A beautiful white hybrid, with some violet veining on the front lobe of the lip and the margin white. Exhibited by Messrs. Charlesworth & Co.

CATTLEYA SATURN ORCHIDHURST VAR. (O'Brieniana alba × Gaskelliana alba).—A charming white flower of fairly intermediate shape, with the disc of the lip light yellow. Exhibited by Messrs. Armstrong & Brown. A flower of each parent was shown for comparison.

MILTONIA VEXILLARIA DREADNOUGHT.—An immense flower, the lip being over four inches across, and the colour rose, with some yellow lines at the base. Exhibited by Messrs. Armstrong & Brown.

OTHER EXHIBITS.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), sent a good form of Odontoglossum eximium, and Odontioda Vesper, a plant of unrecorded parentage, but the lilac colour altogether recalled O. chelseiensis, while some orange-brown spotting recalled Odontoglossum percultum, which is suggested as the possible parentage.

E. W. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent Læliocattleya Carmencita Woburn Place var. (Lc. luminosa × C. Dowiana aurea), with yellow sepals and petals and a ruby purple lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, containing good examples of Miltonia vexillaria and Charlesworthii, Cattleya Warscewiczii Mrs. E. Ashworth, with blush-coloured flowers, Odontioda Zenobia lilacina, with lilac-coloured flowers flushed with bronze, O. Lambeauiana, and forms of O. Brewii, Vanda cœrulea, two good Sarcopodium acuminatum, Odontoglossum eximium album, O. crispum xanthotes and other good Odontoglossums, Cypripedium Rothschildianum, Læliocattleyas, and a beautiful inflorescence of Eulophiella Peetersiana.

Messrs. Stuart Low & Co., Jarvisbrook, staged a brilliant group, containing a beautiful series of Cattleya Warscewiczii, C. Gaskelliana Fairy Queen, C. Milleri (Gaskelliana alba × maxima), Epidendrum nemorale, a good Odontoglossum platychilum, Cochlioda Nœtzliana, Læliocattleya rubens, and others, Odontioda Vulpex, with compact habit and deep red flowers, Eria acervata, and others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged an interesting little group, including good forms of Odontioda rosefeldensis, Lutetia, Leeana, and Bradshawiæ, Odontoglossum promerens var. Perilla, O. crispum Admiral Beatty (c. Raymond Crawshay × c. Mossiæ), a well-blotched form of good shape, a good O. Harryanum, Læliocattleya Teucra, &c. (Silver Banksian Medal).

Messrs. Flory & Black, Slough, staged a small group, including three examples of Disa Blackii, a good D. grandiflora, the richly-coloured Odontoglossum Smithii, Odontioda Zephyr, and O. Ethel (Oda. chelseiensis × Odm. percultum), a charming lilac flower, well spotted with orange brown on the paler centre of the petals.

Messrs. Hassall & Co., Southgate, sent a good example of Odotoglossum Harryanum bearing a spike of twelve flowers, and two diverse forms of Cattleya Sybil (iridescens × Dowiana aurea), one having clear yellow sepals and petals and a ruby-red lip with orange-yellow throat, the other cream-coloured with the centre of the lip orange, and a sharply-defined band of ruby purple in front.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on July 6th, the members of Committee present were: Messrs. A. Hanmer (in the chair), J. C. Cowan, J. Cypher, P. Foster, W. Gilden, A. R. Handley, A. J. Keeling, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), staged a fine group, to which a Silver Medal was awarded. It included Cattleya Mendelii in variety, C. Mossiæ Wageneri Ashlands var., C. intertexta alba, and C. Gaskelliana albens, Miltonia Charlesworthii, Odontoglossum crispum and Pescatorei, Masdevallia Harryana and Courtauldiana, Cochlioda Nœtzliana and vulcanica, Oncidium abortivum, and others.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged some magnificent plants of Phalænopsis amabilis Rimestadiana, Odontioda Brewii, chelseiensis, Red Cross, and Lutetia, with Anguloa Cliftonii (see Awards).

Interesting exhibits from Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), and Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton), appear in the list of awards.

Messrs. Keeling & Sons, Bradford, staged Anguloa Ruckeri and Cypripedium callosum Sanderæ.

Messrs. Hassall & Co., Southgate, London, staged Cattleya Mossiæ Wageneri.

AWARDS OF MERIT.

Cattleya Naidia var. Mary Worsley (iridescens × Hardyana), and Odontoglossum plumptonense Carter Place var.; both from Tom Worsley, Esq.

Miltonia Sanderæ Beardwood var.; from Col. Sir J. Rutherford, Bart., M.P.

Miltonia Hyeana Ashlands var., a good home-raised seedling; from R. Ashworth, Esq.

FIRST-CLASS CULTURAL CERTIFICATES.

To Mr. E. Rogers, for Phalænopsis amabilis Rimestadiana.

The Secretary regrets to record the death, after a rather long illness, of Mr. Ziba A. Ward, one of the earliest and most enthusiastic members of the Society, who passed away peacefully on the evening of Tuesday, the 4th inst.

The Society was represented at the interment by Messrs. H. Arthur (Sec.), A. R. Handley, and D. McLeod.

At the meeting held on July 20th the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, A. J. Keeling, J. Lupton, D. McLeod, S. Swift, H. Thorp, and H. Arthur (Secretary).

Exhibits were not numerous, and the awards consisted of four Awards of Merit and two medals.

Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood), staged a group to which a Silver Medal was awarded. It contained Cattleyas of the Mendelii section, Cypripedium bellatulum, Mary Beatrice, Lawrenceanum and var. Hyeanum, Chamberlainianum, Rossetti, niveum, and Edwardii, Oncidium leucochilum and O. pulvinatum, with others.

Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), sent Odontioda Zenobia var. lilacina.

Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton), sent Brassolælia Veitchii Beardwood var.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged Odontoglossum hibernicum, and a magnificent specimen of Cymbidium Humblotii (see Awards).

AWARDS OF MERIT.

Læliocattleya rubens var. Arthur (L. pumila × C. Hardyana) and Cattleya Hesta (Suzanne Hye de Crom × Warscewiczii Frau Melaine Beyrodt); from P. Smith, Esq.

Odontioda Sir Douglas Haig (Odm. percultum × Oda. Cooksonæ); from Tom Worsley, Esq.

Cattleya Leonora (Dowiana aurea × Warneri); from Col. Sir J. Rutherford, Bart., M.P.

FIRST-CLASS CULTURAL CERTIFICATE.

To Mr. E. Rogers, for a very magnificent plant of Cymbidium Humblotii, carrying a branched spike of seventy-five flowers and buds, over fifty of the flowers being fully expanded. A Silver Medal was also awarded to Mr. Rogers for this fine specimen.

ORCHID NOTES AND NEWS.

THE fortnightly arrangement of the meetings of the Royal Horticultural Society involves three meetings during August, these being fixed for the 1st, 15th, and 29th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The afternoon lecture on the second date is by Mr. Gurney Wilson, on Orchids.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on August 3rd and 17th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

Figures of the Bee and Wasp Orchises are given in a recent issue of the *Garden* (p. 342) by Mr. H. Stuart Thompson. The former is the well-known Ophrys apifera, and the latter a curious variety of it, called var. Trollii, which has been known in the Bristol district since 1787, when Michael Collinson had three roots sent from Clifton. The two figured were found on Durdham Down on June 25th, it is said within sight of the people that Sunday evening. A fine example of Orchis maculata alba on the rockery at Friar Park is given at page 354 of the succeeding issue, and is reproduced at p. 200.

ODONTOGLOSSUM EXIMIUM DRUID'S LODGE VAR. is a large and handsome variety, of which a flower has been sent from the collection of A. P. Cunliffe, Esq., Druid's Lodge, through Messrs. Sander & Sons, St. Albans. The flower is copiously blotched with violet-purple on the lower two-thirds of the segments, which are prettily undulate.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

E.M.—The point about these Sobralias has never been cleared up. S. Veitchii is an artificial hybrid between S. macrantha and S. xantholeuca, and the wild ones that are indistinguishable indicate that somewhere the two grow together. Information on this point is desired.

J.R.D.—Epidendrum phœniceum, Lindl. See p. 182.

J.W.—Stanhopea Wardii, Lodd. The hypochil of the lip is much shorter than in S. oculata.

Beginner.—Keep the temperature down by shading and damping the paths and beneath the stagings as much as possible. It is also a good plan to damp the surroundings of the house outside in spells of very hot weather. A too free use of the ventilators would result in the air becoming over dry, which is particularly injurious. The flower is Odontoglossum Adrianæ, a natural hybrid between O. crispum and O. Hunnewellianum.

The Orchid Review

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OUR NOTE BOOK.

FROM time to time we receive enquiries as to the proper cultural treatment of some intractable subject, and on the present occasion it is that of the beautiful Oncidium Lanceanum, O. splendidum, and the allied species with very thick succulent leaves. The culture of this particular group has always been attended with difficulties, though on a few occasions we have seen vigorous specimens producing strong spikes of their handsome flowers. It is not always possible to say how far some of this is due to native vigour in the plants, for so much depends upon the time they have been imported, but at all events they have the reputation of deteriorating under cultivation, which, again, is a sure index of unsuitable treatment. The question is, what are the essential points to be observed. In the case of Oncidium splendidum our correspondent remarks that in one of our Orchid *Manuals* it is said to like plenty of water, yet in one of the Nurseries he is told that it is not watered at all, as the moisture of its surroundings and a certain amount of syringing supplies all the water it requires. He adopted the latter treatment, but the flower spikes thrown up did not mature, though under a continuation of the dry treatment it is now producing strong growths, and he would like to know what is the proper course to pursue.

Mr. Barker, to whom the question has been submitted, states that years ago he grew some of the finest specimens of Oncidium Lanceanum and luridum that he has ever seen. They were suspended over the paths in a small hot-house in which Crotons were grown, and he found that the succulent leaves enjoy the sun if not allowed to scorch. He recommends that the plants should be grown in shallow pans, in a clean open fibrous compost, and suspended in a very light position in the warmest house, being removed to a dry position in a slightly cooler house to rest as soon as growth is completed. O. splendidum is one of the species grown in quantity in leaf mould by M. Delange Vervane, Brussels, where we saw them—strong, sturdy plants, with clean, healthy leaves, in some cases over ten inches long, and the compost apparently very dry (*O.R.*, xxi. p. 277).

It is probable that a warm climate and comparative drought when the plants are at rest are essential to success. The former is well known, and as regards the latter it may be pointed out that those thick fleshy leaves are an adaptation for storing water during periods of drought, and they are not provided for nothing. Many other Orchids make such provision in the shape of pseudobulbs, but in this group the function is performed by the leaves, which latter seemed more susceptible to injury, in the shape of black spot, from too much water (O. splendidum, it may be added, has short bulbs also, and thus is exceptionally well provided for). The roots also perish from too much moisture in the compost when inactive, and all these points have to be guarded against when the plants are at rest.

Oncidium Lanceanum is the handsomest of the series, and has always had the reputation of being a difficult subject. It has an interesting history. It was brought home by Mr. Lance on his return from Surinam in 1834, and plants that were presented to the Royal Horticultural Society were distributed, and on blooming in several collections raised considerable enthusiasm on account of the brilliant colour and fragrance of its flowers. It was named by Lindley in honour of its discoverer, who contributed a very interesting account about it.

"The first specimen of this splendid epiphyte I discovered," he remarked, "was growing on the trunk of a large Tamarind tree in a noble avenue of these trees close to the Government House in Surinam. I afterwards found a great number of plants in different parts of the Colony. They were generally attached to the stems or branches of the Tamarind, the Sapodilla, or the Calabash trees, appearing to prefer those to any other; however, on being tied to the branches of the Orange, the Soursop, the Mammee, or even the Brugmansia arborea, it grew well upon them all, and produced vigorous stems with upwards of twenty blossoms on each stem. The scent is extremely fragrant, and is retained after the flower is dried, only becoming fainter and more of a spicy odour than when fresh. The plant remains in full beauty ten or twelve days, a long period in that climate; and I found that it always required a shady situation and a living stem to grow upon, without which it would not produce flowers in the highest perfection."

Just before Mr. Lance returned, Bateman had sent Mr. Colley to Demerara to collect Orchids, and Colley remarked that this plant afforded the only instance observed by him of the attention of either the settlers or natives being attracted by Orchids. In proceeding up the large river, he met with a man who had growing near his door a plant of this species, which, according to his account, had arrested his notice by its delightful

and powerful fragrance, long before he either saw the plant or could find where it grew. Neither money nor entreaty could induce him to part with it; and though he took Mr. Colley to the spot where he obtained it, not another morsel of it could be found. Later on, however, Colley met with it elsewhere, for after about five days' sail up the Demerara River, he stumbled upon a solitary tree which was covered from head to foot with this Oncidium, and he immediately set to work and stripped the tree. It is said to have retrieved the fortunes of the expedition, and Bateman has recorded that "when a large healthy cargo was known to have arrived, everyone, save the fortunate possessors of Mr. Lance's specimens, were prepared to go down on their knees for a bit, offering their greatest treasures in exchange, and in this way, without any money passing, I became possessed of bits of all the then-known species that I cared to have."

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Oncidium Lanceanum has since been found in other places in British Guiana, and at the extreme south-western point of Trinidad, known as the Cedros district, where is found also O. luridum—a widely diffused plant at low elevations in the West Indies and on the adjacent coasts of Central and South America—and the beautiful O. hæmatochilum, Lindl., as we know on the authority of Mr. T. T. Potter (*O.R.*, iii. p. 174). The latter was originally recorded as a native of New Grenada, and was long known as a species, though Mr. Potter proved both points to be incorrect.

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It appears that in Trinidad O. Lanceanum is known as the "Cedros Bee" (the Oncidiums being called "bees" from the fancied resemblance of the flowers to these insects), and that in the district where O. hæmatochilum is found, O. Lanceanum and O. luridum also occur in quantities, sometimes growing close together, even in some instances on each other's roots. They flower at the same time of the year, the dry season, February to April (O. Lanceanum also flowering again in September and October), and there are two kinds of varieties of O. hæmatochilum, one having a large sanguineous blotch on the lip and a narrow yellow border, the other with a yellow lip and a small crimson blotch. Owing to the belief that O. hæmatochilum was a hybrid between the two others, Mr. Potter crossed them together, and succeeded in raising a single seedling. It affords a curious confirmation of a remark by Lindley, "Intermediate, as it were, between O. Lanceanum and luridum." It was an interesting discovery, for the history of O. hæmatochilum was thus summarised by Messrs. Veitch, in 1892. "First imported in 1847 by Messrs. Loddiges, from New Grenada, it is said, and since that date it has appeared at intervals in various Orchid collections in Great Britain; its habitat is, however, virtually unknown to science." Mr. Potter added that in Trinidad O. hæmatochilum is only found

in this particular district, where it is fast becoming rare, but there is, of course, the possibility that elsewhere the two parent species grow intermixed and hybridise. Mr. Potter sent a photograph of the two varieties in question, in which the two kinds of lip and the intermediate character generally are well shown. The photogragh is here reproduced. It would be interesting if someone would repeat the experiment at home, for the hybrid is very handsome, and has practically been lost sight of.

The are several other fleshy-leaved Oncidiums, mostly without pseudobulbs, and all, so far as we know, are warm-country plants, which grow

Fig. 38. ONCIDIUM HÆMATOCHILUM.

where there is a very pronounced dry season, during which the plants are at rest, hence the charactor affords a good index to the kind of treatment required. The genus Oncidium is remarkable for the wide range of conditions under which the different species grow, for some require the temperature of the warmest house, others that of the Cattleya or Intermediate house, while a few are as cool growers as Odontoglossums, and only succeed with them. O. nubigenum, indeed, is a truly alpine species, which was discovered by Jamieson on the Ecuadorean Andes, it is said at at elevations of 11,000 to 13,000 feet, hence the specific name, literally, "cloud-born," under which Lindley described it. Later on it was introduced to cultivation from some 8,000 to 9,000 feet, and Lehmann has since met with it on the slopes of Chimborazo at 8,000 to 10,000 feet. It has now practically disappeared from cultivation, probably because the necessity for cool treatment has not been realised. The cultivator might obtain many useful hints from Orchids from nature.

CATTLEYA DOWIANA AND ITS DERIVATIVES.

NEARLY a year ago (*O.R.*, xxiii. pp. 321-322) we alluded to the use made of Cattleya Dowiana in the attempt to raise a race of yellow Cattleyas, and the small amount of success that had been obtained, even when the species was recrossed with its own hybrids, and an analysis of the latter may be interesting now that their period of blooming has again arrived.

CROSSES WITH CATTLEYA.

Cattleya Dowiana has been crossed with practically every other species of the labiata group, and five of the resulting hybrids have been recombined with it, as here shown. In every case the second species is given in the left-hand column, the primary hybrid in the centre, and the secondary hybrid resulting from recrossing the latter with C. Dowiana on the right.

Gaskelliana.	Rothschildiana.	Abekeniæ.
labiata.	Fabia.	Sylvia.
Rex.	triumphans.	King-George.
Trianæ.	Maggie-Raphael.	Bellona.
Warscewiczii.	Hardyana.	Prince-John.

In this group both the primary and secondary hybrids have the typical labiata shape, and the purple colour has been dominant, with the single exception of C. Rex, which suggests a line for further experiment, for C. King-George is the most beautiful yellow that has yet appeared.

With the long-bulbed Cattleyas, a corresponding series of hybrids with C. Dowiana can be shown in seven cases, but a further sub-division can conveniently be made according to the shape of the lip.

Of the small group with an entire lip only one example can be cited, and the character is naturally retained by both the primary and secondary hybrid, while the purple colour of the other parent is again dominant.

Bowringiana.	Mantinii.	Freya.

Of the group with a three-lobed lip there are four cases in which both the primary and secondary crosses with C. Dowiana have been raised, in the last two of the series the front lobe being separated from the side lobes by a distinct isthmus, and the difference is more or less reflected in the resulting hybrids, which are as follows :—

Forbesii.	fulvescens.	Katie.
Harrisoniana.	Pittiæ.	Andreana.
granulosa.	Pittiana.	Baron-Delbeke.
Leopoldii.	Chamberlainiana.	Antiope.

The three-lobed lip seems dominant in this group, both in the primary and

secondary hybrids, though the character is least obvious in the first two cases and in certain individuals among the secondary hybrids, while the shades of buff and bronzy yellow seen in the derivatives of C. Fobesii and C. Leopoldii are worth following up, as these colours are not numerous in the genus.

In the last two species the side lobes of the lip are greatly reduced or, in the case of C. bicolor, nearly absent, which has an interesting development among the hybrids, which are as follows :—

bicolor.	Iris.	Venus.
velutina.	Maronii.	Acis.

The absence of side lobes from the lip is a dominant character in the primary hybrids, but in C. Iris the effect of recrossing with Dowiana results in two distinct types of secondaries, one having a bicolor-like lip, as in C. Iris, the other with the entire lip of C. Dowiana, and the latter are among the most beautiful that have yet appeared. Shades of bronze and salmon-yellow also predominate in the hybrids of this group, and further crossing of selected forms with C. Dowiana might tend to eliminate the purple from the sepals and petals, thus giving further results in the direction of C. Dowiana, with an improved constitution and a more open flower. As regards habit the hybrids most resemble the long-bulbed parent, and they are not very vigorous growers.

CROSSES WITH LÆLIA.

Coming to Lælia we find seven species of which both the primary and secondary crosses with C. Dowiana have been raised, these being referable to Læliocattleya. The series may be divided into three groups according to habit and floral character.

In the first set the lip is entire, and the inflorescence comparatively short, in fact the flowers are comparable with the Cattleyas of the labiata group except in the relatively narrower segments. The series is as follows :—

L. crispa.	Lc. Pallas.	Lc. Anaconda.
L. purpurata.	Lc. Dominiana.	Lc. Pathan.
L. tenebrosa.	Lc. Truffautiana.	Lc. Carmencita.
L. xanthina.	Lc. Ophir.	Lc. Thyone.

The hybrids of this group are among the most popular of Læliocattleyas, the flowers being large and of good shape, but the yellow colour of C. Dowiana is lost, except in the L. xanthina series, and in certain forms of Lc. Truffautiana, to which it imparts the flame-coloured or bronzy sepals and petals from which its later but more characteristic name of luminosa is derived. Further crossing of these with C. Dowiana should yield good results.

The species of the next group are characterised by a much-dwarfed

habit combined with solitary flowers of good size and rich purple colour, which differences are reflected in the hybrids, which are as follows :—

L. pumila. Lc. Clive. Lc. Jessica.
L. Dayana. Lc. Ingramii. Lc. auro-Ingramii.

Now follows a species with very marked habit, and an elongated scape of comparatively small flowers, with a narrow three-lobed, and much-crisped lip, the colour in the only one from which both the primary and secondary hybrids with C. Dowiana have been raised being rich cinnabar-orange. The latter colour and the narrow lip are dominant characters, so that further crossing with C. Dowiana is desirable.

CROSSES WITH BRASSAVOLA.

Of the genus Brassavola the popular B. Digbyana is the only one from which both the primary and secondary hybrids have been raised, and in both cases the colour of the Cattleya parent is dominant. These hybrid Brassocattleyas are very handsome, and further crossing with C. Dowiana would probably accentuate the yellow colour, though at the same time reducing the depth of the lip's fringe. The following is the series :—

B. Digbyana. Bc. Leemaniæ. Bc. Minerva.

CROSSES WITH SOPHRONITIS.

Lastly comes the dwarf and brilliantly-coloured Sophronitis grandiflora, which, when united with C. Dowiana, has given primary and secondary Sophrocattleyas of great brilliancy, in both the colour of the Sophronitis being dominant. They are as follows :—

S. grandiflora. Sc. Doris. Sc. Dorea.

Here we find a varied series of nineteen secondary hybrids in which the beautiful Cattleya Dowiana is twice represented, and which in consequence would be expected to show a preponderance of its own essential characters, yet in very few cases is the yellow colour of the sepals and petals reproduced, and those for the most part where purple was originally absent. It is probably a case of reversion, for C. Dowiana stands alone in the C. labiata section for its yellow colour, and thus was probably derived from a purple ancestry, a theory which is confirmed by the presence of a flush of purple in the petals of many of its forms. White varieties of purple species scarcely forms an exception so far as the yellow colour is concerned, though the behaviour of the yellow Lælia tenebrosa Walton Grange var. suggests that the few forms with the latter colour could be utilised in the attempt to raise a race of yellow Cattleyas. Of the species having this colour one is practically limited to Lælia xanthina, which is weak in other respects, for Lælia flava and L. Cowanii are too small, though the primary hybrids with C. Dowiana, known as Lc. Andromeda and Lc. Ariel respectively, are probably being followed up.

It is an instructive series, and affords interesting evidence on the

question of the fertility of hybrids, which seems to be almost the rule among Orchids. It may be added that only in one case do the parent species grow together, but there are some puzzling forms which have been referred both to C. Hardyana and to one or the other of its two parents, that may be secondary hybrids. The hybrids C. Prince-John and the corresponding hybrid between C. Hardyana and C. Warscewiczii should be interesting in this connection, but there may be wild hybrids of much more ancient ancestry. Cattleya Dowiana, as is well known, occurs in two widely separated areas; in Costa Rica, where it was originally discovered, and in the Frontino district of the State of Antioquia, some six hundred miles further south, the latter being known as var. aurea. It is only in the latter area, where it grows with C. Warscewiczii, that these curious intermediate forms occur. In the Costa Rica district there is a variety Rosita, which is characterised by the exceptional amount of purple in the sepals and petals.

SOBRALIA KLOTZSCHEANA.

A BEAUTIFUL white Sobralia with deep yellow disc to the lip has flowered at the Royal Botanic Gardens, Glasnevin, which Sir Frederick W. Moore states was imported from Peru. It has been taken for a form of the Costa Rican S. leucoxantha, Rchb. f., but further consideration raises the question whether it may not be the imperfectly-known S. Klotzscheana, Rchb. f. (*Linnæa*, xxii. p. 815). That was based on a specimen collected at Chicopleya, Peru, by Ruiz, as long ago as 1797, and the flowers are described as white, and of much the size and beauty as S. macrantha. The description is otherwise very imperfect and without dimensions. It is the only Peruvian species placed by Lindley in this group, and at all events the colour and the native country are in agreement, so that unless there is another Peruvian species of the affinity it may belong here. The flowers of the Glasnevin plant are smaller than in S. macrantha, and the sepals and petals relatively rather shorter and broader than in S. leucoxantha. It is unfortunate that the original specimen is not accessible, for, in view of the little that is known of the distribution of the Sobralias, the identity of the plant cannot be cleared up with certainty. And there is another mystery, for Ruiz & Pavon described three species, the original S. dichotoma, well-known from dried specimens, and bearing panicles of flowers, S. amplexicaulis, now known as Epistephium amplexicaule, and S. biflora, still only known from the very imperfect description, and which ought not to be identical with S. Klotzscheana. There are probably other Peruvian species.

R.A.R.

ARACHNIS FLOS-AERIS.

THIS remarkable epiphyte, long known to residents in Malaya as the Scorpion Orchid, has flowered at Kew on several occasions, and only a few weeks ago bore a fine raceme of its quaint flowers. The accompanying illustration represents an inflorescence which appeared in the collection of Hugh Dixon, Esq., of Sydney, N.S.W., and represents the flowers one-fourth natural size. The colour of the flowers is greenish yellow, with large red-brown blotches, and the inflorescence is sometimes branched and bears as many as fifteen flowers. The plant has a climbing stem, and grows from four or five up to several feet high. The species has

Fig. 39. ARACHNIS FLOS-AERIS.

been known for upwards of a couple of centuries, having been figured by Kæmpfer as long ago as 1712, under the name of Kunong ging, with the information that it was a native of Java, and bore the name of Scorpion flower. Linnæus, who placed all the tropical Orchids then known in his genus Epidendrum, and whose knowledge of it was based on Kæmpfer's figure, called it Epidendrum Flos-aeris, whence it was transferred by Swartz successively to Limodorum and Aërides, while Blume, who in 1825 worked out the Orchids of Java, formed the genus Arachnis for its reception, but he unfortunately changed the specific name to moschifera, on account of its musk-like fragrance. Later on he modified the generic name to Arachnanthe, both changes being inadmissible, as Reichenback pointed

out in 1886. It also bears the names of Renanthera arachnites, Lindl., and R. Flos-aëris, Rchb. f. It is a native of Java, Borneo, and the Malay Peninsula, occurring at moderate elevations, and hence it requires the temperature of the East Indian house, and a moderately shady position.

Several other species subsequently appeared, and their nomenclature has been much confused, but when in 1886 Reichenbach described a new species from New Guinea, under the name of Arachnis Beccarii, he included five others in the genus besides the original one, these being A. Hookeriana (Renanthera Rchb. f.), a native of Borneo and the Malay Peninsula, A. labrosa (Arrhynchium, Lindl.), from the Khasia Hills and Burma, A. Sulingii (Aërides, Blume), from Java, A. Lowii (Vanda, Lindl.), from Borneo, and A. Rohaniana (Renanthera, Rchb. f.), from Borneo, the latter, however, now believed to be only a former of A. Lowii. Four additions have subsequently been made, namely, A. Maingayi, Schltr. (Arachnanthe, Hook. f.), from the Malay Peninsula, A. alba, Schltr. (Renanthera, Ridl.)—which, however, is synonymous with the Bornean A. Hookeriana—A. Muelleri, J. J. Smith (Vanda, Kränzl.), from New Guinea, and A. breviscapa, J. J. Smith, from Borneo. And there is one other striking thing, nearly allied to the original species of the genus, namely, A. annamensis (Arachnanthe annuamensis, Rolfe, in *Gard. Chron.*, 1905, i. p. 391), which was introduced by Messrs. Sander & Sons from Annam, and flowered at Glasnevin, in June, 1905. R.A.R.

CYMBIDIUM HUMBLOTII. — A magnificent specimen of Cymbidium Humblotii was exhibited at the meeting of the Manchester & North of England Orchid Society, held on July 20th last, from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, for which the gardener, Mr. E. Rogers, received a First-class Cultural Certificate and a Silver Medal, in recognition of its excellent culture. It bore a branched panicle of seventy flowers and buds, over fifty of which were expanded. The species was described nearly 25 years ago (Rolfe, in *Gard. Chron.*, 1892, ii. p. 8), the occasion being the flowering of a plant in the collection of C. Ingram, Esq., of Godalming, to which a Botanical Certificate was awarded by the R.H.S., this proving identical with a dried specimen collected in Madagascar by M. Leon Humblot, after whom the species was named. M. Warpur, who afterwards collected it there, states that it grows on the stems of the palm, Rhopala madagascariensis. The plant has creeping, rhizomatous, woody stems, with numerous elongated leaves, and large branching panicles of numerous green flowers, with black markings on the lip, in this respect resembling Cœlogyne pandurata. It is a striking species when well grown, but is rare in cultivation, though Messrs. Charlesworth obtained some plants of it a few years ago.—R.A.R.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

SINCE writing my last notes the outside conditions have been ideal for Orchid culture, a clear atmosphere with bright sunshine prevailing, and this has enabled the plants to make rapid growth, and, to a certain extent, to consolidate it as made. With a continuance of such weather the general conditions advised in previous Calendars may be observed, but should cold, damp weather intervene a drier atmosphere, with a slight reduction in temperature in all departments, will be advisable. September may be a month of sunshine or of wet, sunless weather, and the management of Orchids should be modified accordingly. In some cases it may be necessary to maintain the temperatures by fire heat, especially towards the end of the month.

At this season it will be necessary to gradually inure the plants, as a whole, to more sunlight, and to reduce the amount of shading in order to ripen and consolidate their growths. This, of course refers especially to those plants which have hard pseudobulbs, as Cattleyas, Dendrobiums, &c., whilst such plants as Phalænopsis, Cypripediums, Odontoglossums, and others, which are liable to injury if exposed to strong sunlight, must be shaded whilst the sun has strong power. It is a difficult problem to give precise directions as to what the grower should do under every condition, and the treatment may have to be modified to suit local circumstances.

SHADING.—The blinds should only be used when the sun is powerful, and there is danger of the plants scorching, as this may mean the loss of a valuable plant.

ATMOSPHERIC MOISTURE must be gradually reduced as the days shorten, and the sun loses power, but for those plants which are in full growth genial and humid conditions must still be maintained.

VENTILATION at this season is one of much importance, as fresh air, combined with light, are the elements necessary to ripen the newly-made growths. Special care is necessary in some of the more northern districts, but in the south the greater amount of light experienced enables the plants to ripen their growths satisfactorily.

WATERING.—The application of water to the roots will now require much consideration, as those plants which have completed their growths will only require sufficient to keep them from shrivelling, whilst those in full growth must have it applied whenever they become dry. The water supply should be gradually reduced as the plants mature their growth, and the careful observer will easily see when the plants take up less moisture from the compost. Plants in dry positions should be watched, as the

continual application of water to the compost ends in the loss of the roots.

WINTER QUARTERS.—It is desirable, at this season, to make preparation to place the plants in their winter quarters, for experience proves that certain of them like some particular position during the dull dark days of winter. To the amateur, as well as those who have to deal with a large number of plants, these small matters count for much. The glass should be thoroughly cleaned from all kinds of dirt, insect pests, &c.

CYPRIPEDIUMS.—Some of the earliest flowering varieties will now be pushing up their flower spikes rapidly, and these should be neatly staked as they become long enough, for, if they are allowed to hang about and become twisted the flowers lose much of their beauty. C. insigne Sanderæ and many others produce their flowers rather early, and as they are now procurable at a very modest outlay, there is no reason why everyone should not enjoy them. Any plants of the summer-flowering section, which have passed out of bloom, and are in need of new rooting material, should have attention at once, using a compost as previously advised.

DENDROBIUMS.—The deciduous section, both species and hybrids, which produce flowers early in the new year, are now fast completing their growths, and when this is assured they should be placed in their resting quarters and receive only sufficient water to prevent them from shrivelling. Plants of D. Phalænopsis and D. formosum that are now pushing up their flower spikes should have all the light possible, to enable them to open their flowers before the autumn fogs are upon us, as these have a pernicious effect upon these beautiful flowers. The evergreen Dendrobiums, such as D. thyrsiflorum, D. Farmeri, &c., are now fast completing their season's growth, and when this is accomplished they may be taken to the resting house and treated like the deciduous section. D. Dearei and atroviolaceum should be grown in the Cattleya house the year round, where the conditions of air and moisture answer their requirements admirably.

CATTLEYAS AND ALLIES.—At the present time these beautiful Orchids have come to their own; there is no more popular group, and rightly so, for their flowers may be enjoyed the whole year round. C. Warscewiczii, Warneri, Hardyana, and any others which have passed the flowering stage, and commenced to push new roots from the base of their pseudobulbs, may be repotted, should they be in need of new material. Lælia tenebrosa, L. purpurata, and similar plants may also receive that attention should they require it. The usual precautions must be taken as regards the application of water to newly-potted plants. Cattleyas, Lælias, Læliocattleyas, &c., which produce their flowers during the winter months, should be elevated quite close to the glass, where they may enjoy every particle of light, and be watered with extreme care.

MASDEVALLIAS.—Although not so popular as once they were, the

brilliantly-coloured section, such as M. Harryana, Veitchiana, amabilis, ignea, and others, will always command a place in our collections. The present is the best possible season to repot any that are in need of new material, using a clean fibrous mixture similar to that used for Cypripediums, and, if carefully watered until they get re-established, no great difficulties will be met with in their cultivation. A shady position at the warmest end of the Cool house answers their requirements. Masdevallia is a large and interesting genus, and worthy of a more extended culture than it enjoys at the present day. The species of Pleurothallis succeed under similar conditions, also Restrepia, Octomeria, and Promenæa.

ODONTOGLOSSUMS.—The repotting of these plants should be pushed on with as the plants reach the desired condition. At this season they soon get established in the new material, and the better they are rooted the finer the growths and the stronger the flower spikes.

ONCIDIUMS are usually represented by plants in flower at all seasons, and their panicles of flowers always command admiration. O. varicosum and tigrinum are now pushing up their flower spikes, and as they attain sufficient length they should be carefully staked to prevent accidents. O. ornithorhynchum, and its variety album, with others which have been grown during the summer months in the Cool house, should now be returned to a cool position in the Intermediate house. After flowering Oncidiums should receive a decided rest, but on no account be allowed to shrivel.

VANDA CŒRULEA will now be in flower, and where a house can be devoted to its culture it is a most delightful subject. As the plants pass out of bloom they should be rested, receiving air on all favourable opportunities, and plenty of light at all seasons. Renanthera Imschootiana succeeds under the same conditions, and its bright scarlet flowers are always appreciated.

TRICHOPILIAS, of the different species are commencing to grow, and those in need of new rooting material may have attention. They succeed grown in shallow pans, suspended from the roof of the Intermediate house, and a similar compost to that used for Cattleys will answer their requirements.

MILTONIAS.—Continue to repot the late-flowering plants of M. vexillaria, also M. Bleuana, Hyeana, and other hybrids of this section. Those now in flower had better be held over until the early spring months.

CHYSIS.—Both the species and the hybrids are now fast completing their growths, and every inducement should be given them to do so. When their foliage changes colour they may be placed with the Dendrobiums in the resting house, giving them a light position and sufficient water to prevent shrivelling.

LÆLIA ANCEPS, and its numerous varieties now pushing up their flower spikes, must have water whenever they become dry, and enjoy every particle of light possible.

GENERAL REMARKS.—Time changes all things. In the past Orchid collections were composed of a great variety of different species; to-day they comprise fewer species with innumerable hybrids, mostly of a showy and decorative character, and the movement will continue until Orchids are grown in almost every garden of any repute. Things are rather out of course just now, but when we, as a nation, return to our peaceful occupations, Orchid-growing will progress to a height hitherto considered impossible, as the march of improvement is only yet in its infancy. Much has been accomplished, but the scope for further progress is unlimited.

ODONTOGLOSSUM ASPIDORHINUM.—This very distinct and floriferous Odontoglossum has been in cultivation for a good many years, but has never become common, and it is interesting to note that at the R.H.S. meeting, held on August 15th, a Cultural Commendation was given to Mr. F. W. Thurgood, gardener to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a finely-grown specimen bearing about three dozen spikes of flowers. The species was described by Lehmann, in 1895 (*Gard. Chron.*, 1895, ii. p. 356), when the author remarked:—

"This is beyond any question the most floriferous Odontoglot yet discovered. Not only does every pseudobulb produce two flower-spikes at one time, but they do so for two and three years in succession, a character which, though common among Masdevallias, has not yet been observed with Odontoglossum. It is, therefore, quite common to meet with comparatively small masses, which are set with twenty to thirty flower-spikes at one time, and as many as thirty-eight have been observed on one plant. Such plants look very charming and ornamental, more especially as the flower-spikes stand apart from and slightly bend above the short narrow leaves, thus forming a semi-globular mass of great beauty. I think scarcely anything more graceful as a centre plant at a dinner table could be imagined. The flowers vary somewhat in the colour of the lip, being sometimes pure white, but more frequently more or less spotted with lilac-crimson. The name is given in allusion to the peculiarly upright bent staminode standing like a shield above the nose-like rostellum."

The species is a native of Colombia, growing on trees in dense forests on the eastern declivities of the Western Andes of the Cauca, at some 7,300 to 8,300 feet elevation. It is most allied to O. constrictum, Lindl., to which it bears a general resemblance in character and in the shape of the lip. It would be interesting to try the effect of crossing it with some of the large-flowered showy kinds.—R.A.R.

HYBRIDISATION AND SELECTION.

FREQUENTERS of the meetings of the Royal Horticultural Society will be aware how comparatively few of the novelties that appear, even among the well-known showy groups, are not to be considered improvements on existing kinds, and thus fail to catch the eye of the Orchid Committee, and the number that never appear there must be still more numerous. The question is, how far this condition of things could be avoided by a more rigid selection of the parents, and a few hints as to how to avoid these disappointing results would be interesting to amateurs, who have little room to spare, but who like to make a few experiments in hybridising.

AMATEUR.

There are two or three difficulties where the facilities for raising seedlings are not great, and one is that the choice of parents is somewhat limited, and most of the promising crosses have already been made. On the whole the most certain chance of success would be to repeat existing crosses with specially good parents, using a plant of known reputation as the seed bearer, and, if necessary, obtaining pollen of some choice variety from a friend or from some of the nurseries. By this means one would be sure of good results, with the possibility that some of the seedlings would possess special merits. Another method would be to follow up some particular line of work where improvement seems possible, and the difficulty here seems to be that work of this kind takes a long time before results are obtained. The work, however, is fascinating, and it is now possible to obtain seedlings of known parentage and grow them on until they flower. A correspondent suggests that amateurs might initiate a system of exchange of seedlings among themselves, which certainly has possibilities, for occasionally more seedlings are obtained than can be grown on to flowering size.

With respect to certificates, it may be said that the standard of quality is constantly being raised. Again, they are often exhibited at their first time of flowering before they have reached their full development. The number of inferior forms that are never heard of can only be judged by those who are engaged in the business, but we have seen some of them before their final disappearance. Unless hopelessly bad, they are often left to flower a second time, because one cannot always judge them from the first flower. Recent work consists largely in recombining existing hybrids along definite lines, and here a considerable amount of reversion is inevitable. In fact selection is the only method of improvement, and there is no royal road to success.—ED.

CATTLEYA HARDYANA.

IF all the primary and secondary hybrids of Cattleya Dowiana that are analysed elsewhere (pp. 213-216) could be brought together at one of our Shows they would form a very remarkable group. Cattleya Hardyana, which is here figured, is one of the earliest and finest of them, and the only natural hybrid in the series. It appeared quite unexpectedly in 1883, in the collection of George Hardy, Esq., Timperly, having been purchased about three years previously as C. Sanderiana. It was at once recognised as a

Fig. 40. CATTLEYA HARDYANA.

new form, and in 1884, before it was named, an account was published in which its origin and parentage were clearly indicated (*Gard. Chron.*, 1884, ii. p. 211). Numerous varieties have since appeared, an account of which has already been given (*O.R.*, iv. pp. 241-244). Experiments were soon in progress to prove its origin, and in September, 1896, two artificially-raised seedlings in bloom were exhibited at a meeting of the R.H.S. from the collection of N. C. Cookson, Esq., Oakwood, Wylam. These were from a

cross made in August, 1887, by Mr. W. Murray, C. Dowiana aurea being pollinated with C. Warscewiczii (*O.R.*, iv. p. 298). Seedlings have since flowered in several other collections, and C. Hardyana is now one of the best-known and most popular of summer-blooming Cattleyas.

LÆLIOCATTLEYA INGRAMII.—Of a quite different type from Cattleya Hardyana is the beautiful hybrid here figured, which is the result of crossing Lælia Dayana with the pollen of Cattleya Dowiana aurea. It has much of the dwarf habit of the seed-bearer, the floral characters, however, being considerably modified by the influence of the other parent. It was raised in the collection of C. L. N. Ingram, Esq., Elstead House,

Fig. 41. LÆLIOCATTLEYA INGRAMII.

Godalming, by Mr. T. Bond, and received a First-class Certificate from the R.H.S. in May, 1892. The sepals and petals are much broader than in L. Dayana, and rosy-mauve in colour, while the very ample lip has much of the the rich colouration of the Cattleya parent, with some yellow veining in the throat. The corresponding hybrid with Lælia pumila is known as Lælio-cattleya Clive, and has a pretty similar dwarf habit.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 1st, when there was a rather small display of Orchids, and the awards consisted of one medal and two Awards of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.)., Gurney Wilson, R. Brooman White, S. W. Flory, Arthur Dye, C. H. Curtis, W. H. Hatcher, J. Cypher, J. Charlesworth, Walter Cobb, E. R. Ashton, Pantia Ralli, T. Armstrong, R. A. Rolfe, and C. J. Lucas.

AWARDS OF MERIT.

LÆLIOCATTLEYA GENERAL-LETCHINSKY (callistoglossa × bletchleyensis).—A large and handsome hybrid, with flowers of excellent shape, the segments being broad and rose-purple in colour, and the front of the lip crimson-purple, margined with lilac and with some yellow in the throat. Exhibited by Messrs. Charlesworth & Co.

LÆLIOCATTLEYA MAQUEDA (Lc. George-Woodhams × C. Rothschildiana).—A very beautiful hybrid, in which Cattleya Dowiana is introduced through both parents. The flowers are of good Cattleya shape, and the colour bright rose-purple, with a somewhat darker lip, and darker lines down the centre of the petals. Exhibited by Messrs Armstrong & Brown, Tunbridge Wells.

OTHER EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), showed Læliocattleya eximia Gatton Park var., a very fine form, having light rosy lilac sepals and petals, and the front of the lip violet-purple, with some deep yellow in the throat.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of hybrids, conspicuous among them being Læliocattleya Appam (Lc. Scylla × C. Dowiana aurea), a promising thing, having copper yellow flowers tinged with rose, and a ruby-purple lip with orange-yellow veining in the throat, and Lc. General-Sakharoff (Lc. callistoglossa × G. Gaskelliana), a well-shaped flower, with light rose sepals and petals, and a darker lip, with a broad lilac margin and some yellow in the throat. We also noted Cattleya Gaskelliana and var. alba, C. Hesta, two fine Vanda cœrulea, several examples of the variable Odontioda Brewii, Odontoglossum Harryanum and three charming O. crispum xanthotes, Dendrobium Dearei, Miltonia Charlesworthii, and others (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a brilliant Odontioda of the Red Cross type, the handsome Cypripedium Daisy Barclay, and a good Cattleya.

Messrs. Flory & Black, Slough, sent Cattleya Helen Langley and C. Nena (Adula × Dietrichiana), the latter a promising hybrid in which the influence of the original C. bicolor is well marked, both in the texture of the flower and in the shape of the lip. The flower is large and of good shape, and bright rose-purple in colour, with the front lobe and apex of the side lobes ruby-purple.

At the meeting held on August 15th Orchids were rather more numerous, and the awards consisted of three medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., R. A. Rolfe, F. J. Hanbury, T. Armstrong, Pantia Ralli, E. R. Ashton, Walter Cobb, J. Charlesworth, C. H. Curtis, S. W. Flory, W. Bolton, Gurney Wilson, Stuart H. Low, and W. Thompson.

AWARDS OF MERIT.

CATTLEYA WEEDONAUREA (weedoniensis × Dowiana aurea).—A handsome hybrid, bearing three flowers, with a considerable resemblance to C. Hardyana. The sepals and petals are pale rose with a slightly darker veining, and the lip ruby crimson with deep yellow veining in the throat. Exhibited by the Duke of Marlborough, Blenheim, Woodstock (Orchid grower Mr. J. Smith).

LÆLIOCATTLEYA SERBIA (Lc. St.-Gothard × C. Enid).—A brilliantly-coloured hybrid of good shape, with broad deep-rose sepals and petals, and a claret-purple lip with deep yellow veining in the throat. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATION.

ODONTOGLOSSUM ASPIDORHINUM.—To Mr. F. W. Thurgood, gardener to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a remarkably well-grown plant, bearing about three dozen spikes of flowers, with yellow sepals and petals spotted with brown, and a broad white lip with a few purple spots.

OTHER EXHIBITS.

F. J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), showed Cypripedium Miss Faith Hanbury (niveum × glaucophyllum), bearing a dwarf spike of three flowers, most like the former in shape and colour, but bearing dotted purple lines on the petals and dorsal sepal, and producing a very pretty effect. The lower flower came from the extreme base of the scape between the leaves.

Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Creswell),

showed Læliocattleya Colmaniana Bryndir var. (Lc. callistoglossa × C. Dowiana aruea), a large and handsome variety, having lilac-rose sepals and petals with darker veining, and a ruby purple lip, with numerous deep yellow lines in the throat.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group of well-grown plants, including good examples of Cattleya Dowiana aurea, C. Hesta, C. Kitty-Wren (Gaskelliana × Fabia), a pretty novelty most like C. Gaskelliana in shape, and having rose-purple sepals and petals and a darker lip, Læliocattleya Salonica, Britannia, Appam, and others, good examples of Odontioda Brewii, Wilsonii, and Joan, three charming Odontoglossum crispum xanthotes, Sophrolælia Gratrixiæ and heatonensis, and other good things (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a good group of Cattleyas, including C. Hardyana, forms of C. Adula, and half-a-dozen of the variable C. Sybil, of which the variety Lord French has bronzy sepals and petals of excellent shape, and the front lobe of the lip ruby-crimson, with the centre orange-coloured (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a showy group, in the centre of which was a fine example of Cattleya Warscwiczii bearing twenty flowers. There were also plants of C. Wavriniana, Loddigesii, Dupreana, fulvescens, and Dowiana, some good Læliocattleyas, Vanda cœrulea, Oncidium crispum and Kramerianum, Rhynchostylis retusa, Anguloa Cliftonii, Odontioda Rolfei (C. vulcanica × O. Hunnewellianum), having cream-white flowers marked with purple, O. Vuylstekeæ, Zephyr, and others (Silver Banksian Medal).

A third meeting was held on August 29th, when there was a larger display of Orchids, and the awards consisted of four Medals and two Awards of Merit.

Orchid Committee present:—Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), C. J. Lucas, Sir Jeremiah Colman, Bart., R. G. Thwaites, Pantia Ralli, T. Armstrong, Walter Cobb, J. Charlesworth, Arthur Dye, S. W. Flory, W. Bolton, R. A. Rolfe, and Gurney Wilson.

AWARDS OF MERIT.

LÆLIOCATTLEYA GOLDEN-WREN (Lc. Thyone × C. iridescens).—A handsome hybrid, having yellow sepals and petals tinged with salmon, and the front of the lip crimson with some orange veining on the disc. Exhibited by Messrs. Armstrong & Brown. The plant was bearing its first flower, and should develop into a fine thing.

LÆLIOCATTLEYA THYONE BRYNDIR VAR. (Lc. Ophir × C. Dowiana aurea).—A fine variety, having deep yellow flowers, with a band of intense crimson round the margin of the lip, and some crimson veining in the

throat. Exhibited by Dr. Miguel Lacroze, Bryndir, Roehampton Lane (gr. Mr. Creswell).

OTHER EXHIBITS.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including good examples of Odontonia brugensis, Odontoglossum Uroskinneri, Odontioda Bradshawiæ, Vuylstekeæ, and Aspasia, Cypripedium Maudiæ and a very light form of C. Daisy Barclay (Godefroyæ × Rothschildianum), Sophrocattleya Blackii, good examples of Cattleya Iris, amabilis, and Venus, C. Claesiana alba (intermedia alba × Loddigesii alba), a charming white form, Læliocattleya Maqueda, and other good things (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a select group, including fine examples of Odontoglossum Harryanum, crispum, and eximium xanthotes, Odontioda Brewii, Odontonia Magali-Sander var. xanthotes, the rare Catasetum Russellianum, Stanhopea oculata, fine forms of Læliocattleya Appam, Colmaniana, and Serbia, Cattleya Rothschildiana alba, an exceptionally fine and richly-coloured C. Kitty-Wren, and other good things (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a showy group of hybrids, including several good forms of Cattleya Adula and Sybil, showing the usual amount of variation, with examples of C. Naidia, Læliocattleya Domos, rubens, and Lc. Roumania (Lc. Lusitania × C. Dowiana aurea), light light yellow, with similiar veining on the crimson lip (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting and varied group, including Cattleya Leopoldii alba (see *O.R.*, xxii. p. 302), bearing a spike of eight flowers, with light green sepals and petals and a white lip, C. Lady-Veitch, Vanda Sanderiana, Brassavola Perrinii, Cirrhopetalum robustum, Læliocattleya Queen-Marie (Lc. Walter Gott × C. Dowiana aurea), a fine hybrid with broad salmon-fawn sepals and a rich crimson lip, Lc. Purple-Empress, Cypripedium Baron Schröder, Maudiæ, Germaine Opoix, and others (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent Sophrocatlælia Hanningtonii (Scl. Goodsonii × C. Dowiana aurea), a fine thing, having salmon-rose sepals and petals, and the lip orange-yellow with some crimson veining in the throat, Cattleya Miguelito (Octave-Doin × Dowiana aurea), having flame-coloured sepals and petals, and a large purple-lip with some yellow veining on the side, and Læliocattleya Premier var. Vesuvius, bearing three very large and richly-coloured flowers.

Messrs. Stuart Low & Co., Jarvisbrook, staged a small group, including several well-bloomed Cattleya Warscewiczii, C. Dowiana aurea, C. Myra Peeters, C. Hardyana alba, Sophrocattleya Thwaitesiæ, Læliocattleya Ingramiæ alba, with white sepals and petals, and several other good things.

Mr. C. F. Waters, Balcombe, staged a small group, including Vanda cœrulea, Brassocattleya Maroniæ, Cypripedium Maudiæ, C. Venizelos (Lawrenceanum × Lord Ossulston), most like the former; Læliocattleya Bucharest (Lc. Martinetii × C Caduceus), cream-white tinged with rose and the lip light purple, Lc. Fleury (Lc. Issy × C. Dowiana aurea), with greenish yellow sepals and petals and lilac-purple lip, and Lc. Kavala (Lc. Epicasta × C. Elvina).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on August 3rd, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, P. Foster, W. Gilden, D. McLeod, S. Swift, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Cattleya Dowiana aurea var. Troilus, a large well-set flower, very deep in colour, and with brilliant lip; from R. Ashworth, Esq.

Cattleya Dupreana superba (Warscewiczii × Warneri), a huge, well-balanced flower, of good colour, and with very broad petals; from Messrs. Stuart Low & Co.

AWARDS OF MERIT.

Cattleya Atalanta Carter Place var., Læliocattleya callistoglossa var. Worsleyi, Cypripedium Pytho var. Brutus (callosum Sanderæ × Masterianum), and Odontioda Bruin; from Tom Worsley, Esq.

Cattleya Sybil var. Reine de Saba, C. Rothschildiana var. Tiberis, and Odontioda Brewii var. highfieldiensis; from R. Ashworth, Esq.

Odontioda Brewii var. Rainbow; from Philip Smith, Esq.

AWARD OF APPRECIATION.

Odontoglossum promerens album (eximium × crispum), a home-raised seedling of the albino type; from R. Ashworth, Esq.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine group of Cattleyas, Odontoglossums, Miltonias. and others, in which a highly-coloured variety of Vanda cœrulea was conspicuous.

Interesting exhibits were staged by Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); Philip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); Messrs. Stuart Low & Co., Jarvisbrook, Sussex; Messrs. Cypher & Sons, Cheltenham, and Messrs. A. J. Keeling & Sons, Bradford, several of which appear in the following list of awards.

At the meeting held on August 17th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. D. A.

Cowan, Dr. Craven Moore, A. G. Ellwood, J. Evans, P. Foster, A. J. Keeling, D. McLeod, F. K. Sander, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontioda Mrs. F. M. Ogilvie var. Conyngham, a good round flower, of brilliant colour, with very distinct markings on the lip; from Dr. Craven Moore.

Odontoglossum crispum xanthotes Perfect Gem, a large well-shaped flower, with very distinct markings, and Læliocattleya Serbia var. gigantea (Lc. St. Gothard × C. Enid), a large and brilliantly-coloured form; from Mr. J. Evans.

AWARDS OF MERIT.

Cattleya Rothschildiana albescens var. Conyngham, and Odontioda Diana Uplands var.; from Dr. Craven Moore.

Oncidioda Cybele (C. Nœtzliana × Oncidium sarcodes), Odontoglossum armainvillierense var. Pintadeau, and Læliocattleya Appam (Lc. Scylla × C. Dowiana aurea); from Messrs. Charlesworth & Co.

Cattleya Hesta var. Ruth (C. Warscewiczii Frau Melanie Beyrodt × C. Suzanne Hye de Crom); from Mr. J. Evans.

A Large Silver Medal was awarded to Messrs. Charlesworth & Co., Haywards Heath, for a very fine group, including Cattleya Kitty Wren, Dowiana and Drapsiana, Læliocattleya Britannia var. Melanie, Lc. Momus and Salonica, Sophrolælia Gratrixiæ and heatonensis, Odontioda Wilsonii and Charlesworthii, Odontonia Lairesseæ, some good Odontoglossums, and others.

A Silver Medal was awarded to J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), for a good group of Cattleyas and hybrids, including C. Gaskelliana in variety, C. Venus, Iris × Venus, Læliocattleya callistoglossa, Elva, Hera, luminosa, Hadrian, Brassocattleya Thorntonii, and others.

Interesting exhibits were staged by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. F. Arnold); F. Houghton, Esq., Appleton (gr. Mr. W. Maddock); Mr. J. Evans, Lymm; The Liverpool Orchid and Nursery Co., Gateacre, and Messrs. Keeling & Sons, Bradford, several of which appear in the following list of awards.

SOBRALIA RUCKERI.—With reference to your article on Sobralia Charlesworthii and S. Ruckeri (page 119), it may be interesting to note that about ten years ago I sent a dried flower of a Sobralia to Messrs. Hugh Low & Co., who, after submitting it to Kew, reported that it was thought to be S. Roezlii, which, so far as they knew, had never been cultivated in Europe. Your description of S. Charlesworthii agrees more or less with my plant, except that mine is more claret-coloured, and the band on the lip

is quite golden yellow. It grows from three to six feet high, and the spikes bear 12 to 16 flowers, of which I have seen six open at the same time. I know of only one locality, which is a land-slide in the middle of the forest, among scrub, and thus exposed to full sun. It begins about the lowest part of the Odontoglossum Pescatorei region, and goes down the mountain side to the warm temperate or Cattleya climate, where it has for a companion Uropedium Lindenii. I showed it to M. Forget when he was here, and he was much struck with its beauty. It is certainly one of the finest Orchids that I have seen, both for the beauty of its foliage and flowers. It is a rather fleshy flower, quite distinct from the S. macrantha type, and lasts well when cut. I send a few flowers, and shall be glad if you can clear the matter up.—CYRIL ALLEN, Ocana.

[There is a flower preserved at Kew, which was received from Messrs. Hugh Low & Co., in January, 1906, with the record that it was sent by a collector from the Cattleya Mendelii district, and it is evidently the one alluded to. It is labelled S. Ruckeri, and agrees completely with a specimen from the collection of Sir Trevor Lawrence, Bart., the history of which has been given (*O.R.*, xii. p. 184.—ED.]

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during September, on the 12th and 26th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 7th and 21st. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for October 5th.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

F.K.S.—Cattleya Leopoldi alba. C. guttata, Lindl., has much smaller, more numerous flowers, and a very deeply cut lip, with a very narrow isthmus to the front lobe.

C.A.—Sobralia Ruckeri, Linden (see above). The other two to be reported on later.

J.H.—Bulbophyllum odoratissimum, Lindl.

AMATEUR.—The safest plan would be to sow part of the seeds now and the rest in the spring.

The Orchid Review

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OUR NOTE BOOK.

RECENT exhibits at our horticultural meetings show the extent to which Cattleya Dowiana has been used by the hybridist. To take the two last meetings of the R.H.S., we note that both the plants that secured Awards of Merit on September 12th were forms of Cattleya Venus, while a fortnight later three out of four of the Orchids certificated have Cattleya Dowiana in their composition. At Manchester, on September 7th, all the seven Orchids certificated were derivatives of C. Dowiana, and a fortnight later as many as five out of seven of the Cattleya group that gained Certificates could claim descent from this species. Cattleya Venus is evidently well named, for it gained four Certificates at these two Manchester meetings.

The article on Cattleya Dowiana and its derivatives (pp. 213-216) is interesting in this connection, and if the search for a yellow Cattleya has not been altogether successful it has given us a number of surprisingly beautiful hybrids. And we believe that seedlings of the third generation are in existence, so that further developments may be expected. It is curious how these experiments have clustered around this particular species, for out of the nineteen primary hybrids that have been recrossed with C. Dowiana only two appear to have been reunited with the other original parent. In a hurried glance through the list we only notice two, C. Iris × bicolor and Læliocattleya Dominiana × Lælia purpurata, yielding, respectively, C. Farquharsoniana and Lc. Wiganiana. It serves to emphasise the fact that the experiments were carried out with a definite object in view, but it is curious that the remarkable fringed lip of Brassavola Digbyana has not invited further experiment. Probably B. Digbyana possesses no other desirable quality, but the aim now seems to be to get any desired quality on both sides of the ancestry, and the experiment would be well worth trying. But similar objections could hardly apply in the case of Sophronitis grandiflora, for a race of Sophrocattleyas having more of the qualities of this brilliant little plant would be an acquisition, especially if, like it, they could be grown in a Cool house.

And the dwarf, compact habit is not to be overlooked, for such plants, when grown suspended in shallow pans, are particularly effective.

We have received another interesting note respecting the proper treatment of Oncidium splendidum, to which allusion was made at page 209. It is said that in its native home the species gets a long dry time, hence its hard, Cactus-like habit, but during the rainy season there is abundant water, and it is then that it makes its growth. When the plants are at rest very little water is required, unless during the winter the compost should become abnormally dry, owing to the use of extra pipe heat. Osmunda fibre is recommended, with the addition of a little fibrous loam (the dust being sifted out), and the amount of root action is said to afford a guide as to the amount of water required. Under such treatment strong spikes are produced in the autumn, and flowers about Christmas. We ourselves have seen it with branched spikes some three feet long, and bearing a profusion of its brilliant flowers, and it is interesting to know the mode of treatment adopted.

The article on Herbaria and their uses (pp. 194-197) has brought us two interesting communications, one of them from a very old correspondent, who remembers well the sensation caused by the sealing up of the Reichenbachian Herbarium for a quarter of a century. It is remarked that the contents of that Herbarium were largely the result of the great development of Orchid culture in England, which sent Orchid collectors into almost every region of the tropics in search of novelties, to be in turn sent to Hamburg for classification and description. Such a collection should have been available fer reference from the outset.

No doubt this ought to have been the case, but the only remedy that we can suggest is that a Herbarium of this kind should be public property. Incidentally it also shows how much this work may depend upon the tastes and energy of some particular individual. Dr. Lindley carried on the work for many years, and, fortunately, preserved his materials, which, at his death, were acquired for the nation, but as no one was found or was encouraged to succeed him, the work drifted to Germany, with results that are too well known. In the same way Mr. R. D. Fitzgerald took up the study of Australian Orchids, and executed a number of beautiful drawings, but as he could never be induced to look at a dried specimen all his materials were lost. It may not have mattered so much where detailed drawings were made, but, unfortunately, he also named and described briefly a number of others which were apparently not drawn, and some of these remain doubtful. Even some of Lindley's specimens were not kept

after drawings were made, at all events they are not preserved in his Herbarium.

Another correspondent alludes to the excellent organisation of such a Herbarium as that at Kew, by which it is possible to quickly identifiy almost any given plant, provided materials are already there. He was interested to find a specimen of an Orchid that came into cultivation some years ago from some unknown locality, and was almost as quickly lost. It was sent to Kew for determination, and, being found to be new, was named and described, and the specimen preserved, that specimen and description being now all that is known about it. It probably still flourishes in its unknown habitat, for the world is a big place, and has not yet been fully explored, even by Orchid collectors.

There is an interesting point that may be mentioned in this connection, namely, the large number of Orchids that are only known from plants that have flowered in gardens, and this is due to the fact that they were discovered and sent home by the numerous collectors sent abroad in search of novelties. It has been entirely a commercial question. In this way many unknown districts have been explored, and the plants met with have been sent home to enrich our collections. On flowering, the majority proved unknown, and the problem was to get them identified, for which purpose they were entrusted to anyone who would undertake the work. Whether the materials were subsequently preserved and formed into a Herbarium was a matter of no concern, and it is fortunate that more of them have not been lost.

In some cases a few flowers were dried by the collectors, and many of these were sent to Reichenbach, but in many others this point was neglected; and it may be added that the plants were not always in bloom when found. In any case a very large number of species are only known by such materials as it has been possible to collect from garden sources. The unfortunate thing is that many of the plants died before such materials were secured.

The problem is how to deal with those species of which no dried specimens are available for comparison, and of which the original description is inadequate for their identification. They cannot be ignored, at all events while the law of priority exists, but such difficulties suggest the necessity of a rule that when new species are described a specimen or adequate drawing shall be deposited at Kew, or in some other public establishment.

THE GENUS HUNTLEYA.

THE flowering at Kew of a distinct new species of Huntleya from the collection of the late Sir Trevor Lawrence, Bart.—H. citrina, Rolfe, with bright yellow flowers and crimson teeth at the base of the lip—calls attention to a genus which has been entirely submerged. It was dedicated to Mr. J. T. Huntley, one of the most ardent Orchidists of his day (Lindl. in *Bot. Reg.*, sub. t. 1991), its characters being drawn from a fine Brazilian drawing by Descourtilz, and the species being called H. Meleagris, Lindl. A second species, H. sessiliflora, Batem., was also included, but this remains unknown, and Bateman states that it originated in a mistake. This, therefore, with several others that were afterwards wrongly included in the genus, need not concern us. Reichenbach subsequently united Huntleya with Batemannia, Lindl., and added several additional species, while Bentham made of it a section of *Zygopetalum*, considering it not more distinct than several others so reduced by Reichenbach. The others which belong to the genus are as follows :—

H. ALBIDOFULVA, Lem. in *Ill. Hort.*, 1868, t. 556.—A native of Brazil. Flowered in the establishment of M. Ambrose Verschaffelt, of Ghent, in 1867.

H. APICULATA. Batemannia apiculata, Rchb. f. in *Linnæa*, 1877, p. 109; *Xen. Orch.*, iii. p. 38, t. 216, fig. 1.—Native of New Grenada, where it was collected by Gustav Wallis.

H. BURTII. Batemannia Burtii, Endr. and Rchb. f. in *Gard. Chron.*, 1872, p. 1099; *Bot. Mag.*, t. 6003. — Introduced from Costa Rica, by Endres, and flowered with Messrs. James Veitch & Sons, in 1872.

H. GUSTAVI. Batemannia Gustavi, Rchb. f. in *Linnæa*, 1877, p. 108; *Xen. Orch.*, iii. p. 39, t. 216, fig. 3.—Native of New Grenada, where it was collected by Gustav Wallis.

H. LUCIDA. Zygopetalum (Huntleya) lucidum, Rolfe in *Gard. Chron.*, 1889, i. p. 798.—Native of British Guiana. Introduced and flowered by Messrs. Sander, St. Albans.

H. WALLISII. Batemannia Wallisii, Rchb. f. in *Gard. Chron.*, 1880, i. p. 776. B. Burtii var. Wallisii, Rchb. f., *l. c.* 1873, p. 575.—Introduced from New Grenada by Gustav Wallis. It is nearly allied to H. Burtii, but said to be distinct. Either the same or a very similar plant has since been collected in Ecuador.

The species succeed under the same treatment as Pescatorea, but very few of them are at present in cultivation. The novelty above-mentioned is a very attractive little plant, recalling Promenæa xanthina in the colour of the flowers.

R.A.R.

HYBRIDS OF CATTLEYA BOWRINGIANA.

IN connection with the portrait of Cattleya Bowringiana, which appears on page 249, it may be interesting to give a short account of the hybrids of the species, which now form a large group and brighten up our collections during the autumn months. Of these Cattleya Mantinii is

FIG. 42. CATTLEYA MANTINII.

probably the best known, and the annexed illustration of a group from the collection of J. Bradshaw, Esq., of Southgate, shows its floriferous character. It was raised in the collection of the late M. G. Mantin, Olivet, France, and flowered for the first time in October, 1894 (*O.R.*, ii. p. 365). The

pollen parent was C. Dowiana aurea, whose influence may be seen in the dwarfed habit, and in the copious yellow veining on the disc of the lip, though in other respects the characters of C. Bowringiana preponderate. In addition to its decorative character it has proved a good seed parent, and has given several very attractive hybrids, both with the Cattleyas of the labiata group and with Læliocattleya.

C. Bowringiana flowered with Messrs. Veitch in 1884, and was quickly requisitioned for hybridising purposes, for a cross with C. Warscewiczii flowered in the autumn of 1891, and was subsequently named C. Wendlandiana. This was followed by C. Chloris, the cross with C. maxima, which received a First-class Certificate from the R.H.S. in October, 1893. Læliocattleya Parysatis, of which Lælia pumila was the seed parent, also flowered for the first time in 1893, while Sophrocattleya eximia, of which Sophronitis grandiflora is said to have been the pollen parent, received a First-class Certificate from the R.H.S. in September, 1894.

CATTLEYA CROSSES.

C. Bowringiana has now been crossed with eight species of the labiata group, giving C. Mantinii with Dowiana, C. Rothwelliæ with Eldorado, C. Ariel with Gaskelliana, C. Portia with labiata, C. Chloris with maxima, C. Barbara with Trianæ, C. Chapmanii with Warneri, and C. Wendlandiana with Warscewiczii, while with C. Hardyana and C. Peetersii, two hybrids of the group, it has yielded C. Whiteleyæ and C. Thomasii respectively. With this section it combines well, as the lip is entire, and other characters are sufficiently in agreement.

Among the long-bulbed species with a three-lobed lip we find eight hybrids, as follows: C. Firefly with Dormaniana, C. Meadii with Forbesii, C. Hopkinsii with granulosa, C. Bactia with guttata, C. Browniæ with Harrisoniana, C. Minerva with Loddigesii, C. lucida with Schilleriana, and C. Charlesworthii with superba, these hybrids being generally taller than in the preceding group, and having smaller flowers.

With the two species of the latter group in which the side lobes of the lip are obsolete, or nearly so, we have the hybrids C. Chloe and C. Clytie, with bicolor and velutina respectively, both being rare.

Two hybrids between the labiata and long-bulbed sections have also been crossed with C. Bowringiana, namely, C. Harrisii and C. Iris, the hybrids being known respectively as C. Fabiola and C. Dido.

CROSSES WITH LÆLIA.

C. Bowringiana has been united with six species of Lælia, three of them Mexican and three Brazilian, the hybrids being Læliocattleya Bowrialbida with L. albida, Lc. Wrigleyi with L. anceps, Lc. belairensis with L. anceps, Lc. Meteor with L. Dayana, Lc. Parysatis with L. pumila, and Lc. Irene with L. tenebrosa, and none of the hybrids are at all common.

Crosses with Læliocattleya.

There are ten combinations with Læliocattleya, the hybrids being Lc. Faustina with bletchleyensis, Lc. decora with Clive, Lc. Illione with Dominiana, Lc. Tiresias with elegans, Lc. Lavinia with Epicasta, Lc. Henrietta with Haroldiana, Lc. Robsoniæ with Ingramii, Lc. Garnet with La France, and Lc. Hera with Leeana. We have not attempted to analyse the parents, because of their mixed origin, but affinities with some of the hybrids of the preceding groups can be traced through their common ancestry.

Other crosses.

There remain to be mentioned the crosses with Epidendrum and with Sophronitis, which are classed under Epicattleya and Sophrocattleya, and are as follows: Epicattleya O'Brieniæ with Epidendrum O'Brienianum, Ec. Sedenii with E. radicans, and Sophrocattleya eximia with Sophronitis grandiflora, the former having received a First-class Certificate from the R.H.S.

The species does not appear to have been recrossed with any of its hybrids, probably on account of its rather small flowers.

ORCHIDS AT KEW.

SEVERAL very interesting Orchids are again in flower at Kew, and among them the fine Odontoglossum chiriquense, whose history and a figure were given at page 177. It is probably the handsomest species of the O. coronarium section. Stauropsis Imthurnii is an interesting Solomon Island species that was introduced by Sir Everard im Thurn, late Governor of Fiji, and has bloomed twice in the collection. The flowers are borne in an ample panicle, and are white with a few purple markings on the lip. Cynorchis villosa is a terrestrial Orchid from Madagascar that is bearing a spike of its very hairy flowers, while the allied C. purpurascens, with heads of purple flowers and ample solitary leaves, is very effective. The quaint genus Cycnoches is represented by C. pentadactylon, C. maculatum, and C. chlorochilon, the former bearing one of its very distinct female flowers. A plant of Sigmatostalix costaricensis bears several spikes of bloom, and S. radicans, suspended near by, is flowering profusely. Cattleyas are making a profuse display, the hybrids of C. Bowringiana being represented by C. Mantinii, Wendlandiana, and Browniæ, all very free-flowering and beautiful. Several of the Brazilian Miltonias are also flowering well. The remarkable Bulbophyllum Warpurii is just over, but other curious Bulbophyllums are in bloom, also representatives of the allied genus Cirrhopetalum, and a number of other interesting Orchids.

DIPLOMERIS HIRSUTA.

THIS very distinct and remarkable Orchid has just flowered at the Royal Botanic Gardens, Glasnevin, and a good specimen has been sent to Kew. It was originally described by Lindley, in 1832, under the name of Diplochilus hirsutus (*Bot. Reg.*, sub. t. 1499), from dried specimens collected at Gossain Than, Nepal, by Wallich, but was changed to Diplomeris hirsuta (*Gen. & Sp. Orch.*, p. 330), when Lindley discovered that it belonged to a genus previously described by Don. It was afterwards found by Lister, also by Gammie, in Bhotan, and by Pantling in the valley of the Teesta, Sikkim, growing on sandstone rocks at 1000 to 1400 feet elevation. The flowers are large and pure white, and are borne singly from the axil of the solitary, oblong leaf, which hangs from the fissures of the sandstone rocks in which the plant grows. The remarkable character of the anther and rostellum were originally indicated by Lindley. Sir George King, however, advanced a new theory, and remarked that the flowers were morphologically of extreme interest, because in them a theory of the structure of Ophrydeæ, suggested with various degrees of distinctness in the different species of Habenaria, is indicated with comparative clearness. This he summarised as follows: (*a*) in Diplomeris there are two anthers, one placed on each side of the posterior or imperfect stigma; (*b*) the staminode represents the second cell of each anther; and (*c*) the viscid glands of the pollinia are not, in the expanded flower, connected with the infertile stigma.

The idea that there are two anthers, each with one perfect and one imperfect cell, and the remark that neither caudicles nor canals have any apparent attachment to a rostellum, arose from failure to appreciate the homology of the parts of this highly complex flower. The fact is the anther is single, but the two cells are widely separated by a broad connective, while the supposed imperfect cells are the staminodes that represent the two abortive stamens of the inner staminal whorl. The canals are part of the rostellum itself, but the caudicles are pollinary structures, and the glands which become attached to their apex are secretions of the rostellum. It can hardly have been appreciated that the two parts which unite to form the pollinarium of an Orchid originate from different whorls of the flower, and are distinct in the earlier phases of development. Appearances have proved deceptive, and we may add that a division of the anther is seen in the highly specialised genera Mystacidium and Dendrophylax among the Vandeæ. It is interesting to trace the phases of development upwards from primitive types. R.A.R.

MILTONIA SPECTABILIS AND ITS VARIETIES.

THE varieties of Miltonia spectabilis are among the most distinct and attractive of autumn-flowering Orchids, and two of the best are shown in the annexed illustration, which represents plants in the collection of Dr. A. W. Hoisholt, Stockton, California. Some years ago Dr. Hoisholt purchased a clump from Messrs. Lager & Hurrell, which it was thought belonged to M. spectabilis Moreliana. It proved to consist of three distinct plants, one the ordinary M. spectabilis, the second a fine dark Moreliana,

Fig. 43. M. SPECTABILIS VAR. RADIANS. 44. M. S. MORELIANA.

and the third the variety radians, the two latter being those here figured. This seems to suggest that the forms grow together, a point on which further evidence would be useful. It will be noticed that there are marked differences in shape as well as in colour between the two varieties.

Miltonia spectabilis is the original species of the genus, and was sent from Brazil to the Birmingham Botanical and Horticultural Society in 1835. It first flowered in the collection of Messrs. Loddiges some two years later, and shortly afterwards with Mr. George Barker, of Birmingham. It is very variable in colour, and several distinct varieties have been

described and figured. The original form has white sepals and petals, and a purple lip, shading off to rosy-lilac above, and with purple veins below.

A few years later a dark purple form was sent to M. Morel, of Paris. by a Brazilian correspondent, which was described and figured in 1851 as var. Moreliana (*Henfr. Mag. of Bot.*, iii. p. 41). Two years earlier practically the same form had been figured as var. purpureo-violacea (*Bot. Mag.* t. 4425), without any account of its history. Although so different in colour from the original M. spectabilis, it scarcely differs in other respects. The variety atrorubens is a rather darker form of the same.

Some years later the variety radians appeared, flowering in the collection of Senateur Jenisch, of Hamburg, in the autumn of 1855, and was described by Reichenbach (*Xen. Orch.*, i. p. 130). It was subsequently figured (*Orch. Alb.*, iv. t. 164). A curious variation appeared in the collection of Sir Trevor Lawrence, Bart., in which there were also radiating lines at the base of the petals.

M. spectabilis virginalis is nearly allied to the preceding, but the radiating lines are replaced by a broad crimson line at the base of the lip. It flowered in the establishment of M. Ambrose Verschaffelt, of Ghent, in 1868. It is figured in *Ill. Hort.*, xv. t. 573.

M. spectabilis bicolor differs from virginalis in having the purple blotch on the lip more than twice as large, extending quite two-thirds of the way to the apex. It appeared with Messrs. Loddiges as long ago as 1837.

M. spectabilis lineata (*Lindenia*, ii. t. 62) is somewhat intermediate between the preceding and var. radians, having a number of narrow purple line extending from the basal blotch of the lip nearly to the apex. It appeared with Messrs. Linden in 1886.

M. spectabilis rosea has the sepals and petals flushed with light rose, chiefly along the centre, and the lip purple. In the original form, which was introduced by M. Binot, and flowered in the establishment of M. Ambrose Verschaffelt, of Ghent, in 1867, there was some white in front of the lip, but others to which the name has been applied are more like light forms of the Moreliana type.

M. spectabilis var. aspersa appeared with Major Lendy, Sunbury-on-Thames, and was described by Reichenbach (*Gard. Chron.*, 1885, ii. p. 70) as a very interesting variety. The sepals and petals were said to be cream-coloured, partly washed with white-mauve-lilac, and the lip light-mauve lilac. The crest of the lip and the column wings were unusually developed, and the author remarked: "I have deliberated in vain as to whether it could be conjectured a mule. There is no species whose features it partly has." Nothing further seems to be known about it, but, presumably, the specimen is preserved in the Reichenbachian Herbarium.

It is remarkable how little is known about the habitat of this fine

species. It is imported from time to time by the Brazilian Orchid collectors, but we have failed to find out how far the white and purple forms grow intermixed, Mr. J. J. Keevil, in an interesting article on Brazilian Orchids (*O.R.*, xviii. pp. 28-30), included it among species that might be found within a short distance of Santos, growing on trees that edge the railway, together with Cattleya Leopoldii, C. intermedia, and a score of other Orchids, but he gave no other details. From a variety of considerations, however, we are inclined to regard the purple as the typical form. We once saw an imported batch, of which many were in bloom, and all fairly alike. The whites, on the other hand, vary much, and never seem to be common, and in the absence of more definite information we are inclined to think that they represent varying phases of albinism of a purple species, and that one of these happened to be described first. Perhaps some of our Brazilian correspondents will kindly give some information on these points, which would be very interesting. There are indications that the species is widely diffused, it having been recorded from the provinces of Rio de Janeiro, Sao Paulo, Minas Geraes, and Bahia, but more details of its habitat are required.

There is, however, evidence that the species of Miltonia grow more or less intermixed, for natural hybrids are common, and a pretty full article on the subject was given a few years ago (*O.R.*, ix. pp. 289-295). There are four natural hybrids of M. spectabilis, the second parents being M. flavescens, M. Clowesii, M. candida, and M. Regnellii, the hybrids being called respectively, M. festiva, M. Bluntii, M. leucoglossa and M. Cogniauxiæ, the latter having the earlier name of M. Peetersiana, Gower. This name was set aside because of an earlier M. Peetersiana, Rchb. f., which, however, proves to be a variety of M. Bluntii. Reichenbach appears to have included the hybrids of M. Clowesii with both M. Regnellii and M. spectabilis under one specific name, calling the former M. Peetersiana and the latter M. Peetersiana var. concolor. In the former the M. Clowesii markings and shape of the lip are unmistakable, as shown in an authentic figure (*Cogn. Dict, Ic. Orch.*), while in the latter both characters are as obviously those of M. Regnellii, as shown in a painting by Mr. Day (*Orch. Draw.*, li. t. 57). This was made in September, 1886, at Mr. Bull's, from a plant purchased at Protheroe's, and was authenticated by Reichenbach, so that there can be no question of its correctness, and it agrees with the plant afterwards called M. Cogniauxiæ, except in being slightly lighter in colour.

There is now evidence of the existence of another natural hybrid of M. spectabilis, namely, with M. cuneata, for the plant described by Rodriguez as M. Rosina (*Gen. et Sp. Orch. Nov.*, i. p. 99), and of which a painting is now preserved at Kew, is quite intermediate between the two.

Rodriguez compared it with M. spectabilis, except as to the absence of the long bracts, but the shape of the flower is more like M. cuneata, and the sepals and petals are light yellow with a few brown markings. It was found in the province of Rio de Janeiro, and is still only known by the original drawing.

Another lost plant which has ranked as a species for over sixty years must, I believe, share the same fate, namely, Miltonia anceps, Lindl. It was originally described by Klotzsch as Odontoglossum anceps (*Allg. Gartz.*, 1851, p. 250), but was transferred to Miltonia by Lindley (*Fol. Orch. Milt.*, p. 3), who remarked that he entertained no doubt of its identity with a plant that flowered many years ago with Messrs. Loddiges, as the leaves, &c., had the same scorched, yellow appearance as M. flavescens. The inflorescence is preserved in Lindley's Herbarium, with a painting of the flower, and is labelled Miltonia flava. Brazil, Loddiges. The name is recorded by Baxter (*Loud. Hort. Brit.*, n. ed. p. 589). M. Bluntii was afterwards figured in the *Botanical Magazine* (t. 5572) from a plant that flowered with Mr. James Bateman, at Knypersley, in 1865. It is said to have been sent to Messrs. Hugh Low & Co. by Mr. Blunt. This has rather broader, yellow sepals and petals, and the lip decidedly more like M. spectabilis. A single flower is preserved at Kew, and all are clearly natural hybrids between M. spectabilis and M. flavescens. M. Bluntii, Lindl., is thus an earlier name for M. festiva, Rchb. f. R. A. ROLFE.

GOODYERA HISPIDA, LINDL.—This rare and pretty Orchid has just flowered in the collection of H. J. Elwes, Esq., Colesborne, Glos., the plant having been brought by him from Sikkim some time ago. Out of bloom it much resembles an Anœctochilus, the leaves being prettily reticulated with white on an olive green ground, and the veins tinged with light purple towards the margin. The species was originally described by Lindley (*Journ. Linn. Soc.*, i., p. 183), from a unique plant that was collected in August, 1853, by Hooker and Thompson, at Churra, in the Khasia Hills, at 4000 feet elevation, and for a good many years it was only known by this single plant. It was next found in Sikkim, for there is at Kew a copy of a painting from the Royal Botanic Garden, Calcutta, the original of which is said to have been obtained from Sikkim in 1875. It was again met with there by Pantling, at Kali Jhora, in September, 1889, in the valley of the Teesta, at about 1000 feet elevation. From the latter material it was figured (*King & Pantl., Orch. Sikkim*, p. 283, t. 375). The species bears a compact spike of flowers with the typical Goodyera structure, and having olive green sepals tipped with white, and the petals and lip of the latter colour. The whole inflorescence is hispid, in reference to which the specific name was given. A plant of it has been presented to Kew.—R.A.R.

CALENDAR OF OPERATIONS FOR OCTOBER.

By J. T. Barker, The West Hill Gardens, Hessle, E. Yorks.

THE month of October varies much as regards the climatic conditions; sometimes fine, bright weather prevails, at others it is wet and sunless, sometimes with fog or frost and cold winds. Whatever the outside conditions are the Orchid grower must be prepared to deal with them, so that all evil effects to the plants may be avoided. After a season like th present, it is advisable in every department to maintain the temperatures a trifle on the warm side, as many plants are late in completing their growths. The temperatures should be reduced gradually, not brought down at once to the winter figures, and in every case a wet, heavily-saturated atmosphere must be avoided, though the other extreme must also be guarded against.

Temperatures.—During this and next month the night temperatures should be kept as nearly as possible at the following figures :—

East Indian or Warm house : 65° to 70°.

Cattleya and Mexican house : 60° to 65°.

Intermediate house : 58° to 62°.

Odontoglossum or Cool house : 55° to 60°.

During spells of cold weather a slight fall in temperature, if not allowed to remain too long a time, will do no harm, provided the atmosphere is in a dry condition. Excessive fire heat is detrimental to the plants, as it not only pushes them into premature growth, but also dries the compost unduly, thus necessitating frequent watering, which decays both the compost and the roots, and is a frequent cause of plants declining in vigour.

Shading may now be dispensed with unless the sun is very powerful, when it may be used over the newly-potted Cool house Orchids during the brightest and hottest part of the day.

Atmospheric moisture must now be used with discretion, and much will depend upon the weather. In some low-lying districts little damping down will be required, but in exposed, dry situations more moisture in the houses will be needed. Care should be taken that all excessive moisture is evaporated before nightfall.

Ventilation at this season is of the greatest importance, as fresh air, combined with light, are the two great factors in ripening the newly-made growths. In the southern counties the greater amount of light enables growers there to ripen their plants satisfactorily, but in many northern districts, where light is much subdued, more care is necessary. Premature ripening by withholding water is not to the benefit of the plants, and should not be practised. During humid weather it is a wise precaution to have one or more of the top ventilators slightly open, which is the means of

keeping a sweet and buoyant atmosphere, and allows the escape of a superabundance of moisture. Draughts, however, must be avoided, as they are highly injurious.

WATERING at the present season is of the utmost importance, but no hard and fast rule can be laid down, as plants vary considerably in their requirements, and each has an individuality that should be considered. Those that are growing, or pushing up flower spikes, must have water applied to them whenever they become dry, but those at rest should only be watered when really necessary. The application of water to a collection of Orchids at this season is such a complex one that to give an outline of the requirements of the different genera would more than fill the pages at my disposal.

RESTING OF ORCHIDS is another question of importance. It is well known that all plants require rest, and many Orchids fail to thrive without it. Some are capable of withstanding a much longer and more severe rest than others, and this is usually indicated by the possession of thick and hard pseudobulbs and leaves; but even resting plants should not be allowed to suffer by shrivelling from want of water at the roots. Shrivelling may also be brought about by resting the plants in too high a temperature. Careful observation will soon detect if a plant is happy or not, even whilst at rest. Plants kept continually growing because of unsuitable treatment sooner or later break down and die.

DENDROBIUMS that have completed their growths should be thoroughly cleaned and placed in their winter quarters in the resting house, where they should receive all the light possible, and only sufficient water to prevent them from shrivelling. Any plants that have started to make secondary growth should be given a light position in the warmest house until it is completed before being rested.

CYPRIPEDIUMS of the winter-flowering section are now pushing up their flower spikes, and these should be neatly staked and the plants cleaned, as advised last month. The beautiful C. superbiens, with any of the other summer-flowering Cypripediums, should be repotted, if necessary, as they pass out of bloom. In deciding if a plant should be repotted or not it should always be taken into consideration that it is much easier to keep a healthy plant growing than to nurse an unhealthy one back into good condition.

THUNIAS.—Plants of this genus which still retain their foliage should be placed in a dry atmosphere in a position where they enjoy full sunshine, and receive water at intervals to prevent them from shrivelling. They should be examined from time to time for red spider, which often at this season infests the underside of the leaves. After the leaves have fallen, the plants can be stored away in a dry place, keeping them quite dry at the

roots. I do not advocate, however, placing them in positions out of sight, as the old adage, out of sight, out of mind, is often too true.

Deciduous Calanthes.—These most useful winter-flowering Orchids are now showing their flower spikes from the base of the newly-made pseudobulbs. The plants should be afforded ample space, and receive as much light as possible, with water at the roots whenever they become dry. The late-flowering varieties of the C. Regnieri section, with others that produce their flowers at the same season, are fast making up their pseudobulbs, and still need abundance of water at the roots, with an occasional watering with liquid manure. The temperature of the house should not be allowed to fall below 65° at night, until the flowers are expanded, when they may be placed in a house a few degrees lower, where the flowers will last considerably longer than if left in a high temperature.

Cattleyas and allies.—Any plants of this large family may still be repotted, provided they are making new roots, the precautions advised from time to time respecting the application of water to the compost being strictly observed.

Oncidiums.—In the Cool house several species of these interesting and useful plants are developing their flower spikes and preparing to bloom, and they will open their flowers much better if removed to the coolest end of the Intermediate house, the slightly warmer conditions being a great assistance to them. In order to prevent the plants from suffering it is advisable to remove the flower scapes when the flowers are all open, as it is very exhausting if they are allowed to remain too long upon the plants.

Miltonias.—Miltonia spectabilis and its varieties Moreliana and atrorubens, with M. Clowesii and M. Regnellii, are interesting members of this genus, which produce their flowers during late summer and early autumn. When their flowering period is over, and the pseudobulbs have finished growing, the supply of water at the roots should be gradually reduced, and the rooting material kept on the dry side until growth commences again in the spring. M. Roezlii, and its variety alba, with any of the late-flowering plants of M. vexillaria or its hybrids, may still be repotted, should they require it, and the new growths are in the desired condition. M. Roezlii requires slightly warmer conditions than M. vexillaria, and all should now be placed in their winter quarters at the warm end of the Intermediate house, and watered only when necessary.

Vandas.—The end of October is the best time of the year to overhaul Vandas of the V. tricolor and suavis section, as at this season the plants produce roots in abundance, and continue to do so throughout the winter months. The pots in which they are grown must be well drained, and clean, living sphagnum moss is the best material to pot them in. Those that are not in need of new material may be surfaced with living moss,

which will make them neat and tidy for the whole season. V. Kimballiana and Watsonii are developing their flower spikes, and should have water applied until the flowers are open, afterwards very little is needed to keep their terete leaves plump. These plants succeed in a somewhat cool intermediate temperature, and should be placed upon a damp base.

CYMBIDIUMS.—Plants of the different species, with many of the fine hybrids of these beautiful plants, are now finishing their growths, and many are producing their flower spikes. Those that are full of roots and in a pot-bound condition will derive some benefit from an occasional watering with liquid manure. The cool end of the Cattleya or Intermediate house will answer their requirements, and they should receive water whenever they become dry.

ODONTOGLOSSUMS.—The repotting of the O. crispum section must be pushed on with as the plants attain the desired condition. O. grande, Insleayi, and Schlieperianum form what is generally called the autumn-flowering section, and all are easily grown, and deserve extended culture. They are best accommodated at the coolest end of the Intermediate house. When in full growth they require liberal supplies of water, but, after flowering and during their period of rest, only sufficient is needed to keep the pseudobulbs plump and the roots and foliage in a healthy condition. Their thick, leathery leaves and succulent roots are capable of withstanding more drought than the Colombian section.

DISA GRANDIFLORA, which rightly deserves its name, "Flower of the Gods," should be repotted some time during the present month, just as the new growths push up from the sides of the old flower spikes. The pots must be well drained, using a compost of equal portions of fibrous peat, osmunda fibre, and sphagnum moss, with a fair sprinkling of half-decayed leaves and a little coarse silver sand, powdered sand stone, or broken bricks, all mixed thoroughly together. After repotting, one watering may be given to settle the compost around them, and then for some time spraying once or twice a day, or even more, according to the outside conditions, will suffice to keep them moist. The house in which they are grown must be freely ventilated, with only sufficient heat to keep frost away. They delight in a cool, moist airy position at all times, and are not grown as much as their merits deserve.

GENERAL REMARKS.—The most pushing work at the present time is the general cleaning of the plants and placing them in their winter quarters, so that when the cold weather is upon us there is no danger of harm accruing to any of them. This work must be thoroughly done to be effectual, as no other work is worth its name. Nature cannot do with slipshod methods, and our best efforts in all things must be put forth if the best results are to be attained.

CATTLEYA BOWRINGIANA.

CATTLEYA Bowringiana, though now somewhat eclipsed by its own fine hybrids, is still one of the most useful autumn-flowering species, and when well-grown produces great trusses of purple flowers which are very imposing. The annexed figure represents one of the finest spikes that we have ever seen, and the plant was grown in the collection of the late F. L. Ames, Esq., North Easton, Mass., by Mr. W. N. Craig. The

Fig. 45. CATTLEYA BOWRINGIANA.

inflorescence carries no fewer than forty-seven flowers. The plant was grown in osmunda fibre collected on the estate. It is part of a large plant which was grown in a basket, and produced annually some six hundred flowers, but, becoming unwieldy, was broken up into moderate-sized plants, which were found more serviceable. The species is a native of British Honduras, and was introduced to cultivation by Messrs. James Veitch & Sons, in 1884. It is curious that no albino of the species has yet appeared.

SOCIETIES.

ROYAL HORTICULTURAL.

AT the usual fortnightly meeting, held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 12th, there was a fine display of Orchids, consisting largely of the Cattleya group, and the awards consisted of four medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, W. H. White, S. W. Flory, Arthur Dye, C. H. Curtis, J. Charlesworth, E. R. Ashton, Walter Cobb, Pantia Ralli, T. Armstrong, R. G. Thwaites, Stuart H. Low, R. A. Rolfe, F. J. Hanbury, Sir Harry J. Veitch, A. McBean, and W. H. Hatcher.

AWARDS OF MERIT.

CATTLEYA VENUS VAR. GOLDEN QUEEN (Iris × Dowiana aurea).—A brilliant form, most like a fine C. Iris in shape, and having the sepals and petals bright cowslip yellow, and the very broad lip violet-rose, with a reddish base and some yellow veining on the disc. Exhibited by Messrs. Charlesworth & Co.

CATTLEYA VENUS VAR. VICTRIX (Iris × Dowiana aurea).—A very fine form, most like C. Iris in shape, and having the sepals and petals bronzy yellow, and the lip ruby red in front and yellow behind, with some yellow veining on the disc. Exhibited by Pantia Ralli, Esq.

CULTURAL COMMENDATION.

DENDROBIUM SANDERÆ.—To Messrs. J. & A. McBean & Co., for an exceptionally well-grown plant, about three feet high, with two flowering growths, and bearing fifty-six finely-developed flowers.

GENERAL EXHIBITS.

The Duke of Marlborough, Blenheim, Woodstock (Orchid grower Mr. J. Smith), staged a very interesting group of hybrids, to which a Silver Banksian Medal was awarded. It contained five very diverse forms of Cattleya Weedonaurea, one having a very richly-coloured lip with two large yellow areas in the throat, others being lighter and having a more variegated lip, C. General Pulteney (Octave Doin × Trianæ), with salmon-rose sepals and petals, and a purple lip with yellow lines in the throat, two Læliocattleya Soulange (Lc. Lustre × C. Dowiana aurea), having rose-purple flowers without any yellow on the lip, a good example of Brasso-cattleya Leemaniæ, and Bc. Enid-Hye (C. Enid × Bc. Hyeæ), a very light form with a yellow disc to the lip.

Pantia Ralli, Esq., Ashtead Park, Epsom (Orchid grower Mr. W. H. White), showed Cattleya Adula excelsa, a fine salmon-rose form, with the lip purple-crimson in front.

Messrs. Charlesworth & Co., Haywards Heath, staged a large and beautiful group, containing good examples of Cattleya Gaskelliana alba, Venus, Pittiæ, Wavriniana, and C. Adula Rayonata, a very fine form, Læliocattleya Britannia var. Melanie, Lc. Thyone, luminosa, Myrrha, and Serbia, Brassocattleya Maroniæ, Sophrocatlælia Laconia, with brilliant crimson flowers, a fine example of Odontonia Lairesseæ, good examples of Disa grandiflora, Odontoglossum grande, Lambeauianum, Aireworth, Pescatorei, eximium, O. Doris magnificum, and three beautiful examples of O. crispum xanthotes, Cypripedium Rossetti and Maudiæ, Miltonia Bleuana, and a fine example of Oncidium incurvum, bearing six large panicles, in the centre (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group, including fine examples of Cattleya Iris, C. Snowdon, C. Claesiana alba, C. Rothschildiana albescens, a very richly-coloured Læliocattleya Berthe-Fournier, the remarkable Bulbophyllum grandiflorum, Cypripedium Alma Gevaert, C. Dallas (Curtisii × Fairrieanum), Sophrocattleya Ariadne, Brassocattleya Hyeæ, Odontoglossum Uroskinneri, and a few good Odontiodas (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a showy group, including good examples of Cattleya Hardyana, Venus, Rothschildiana, Iris, and C. Parthenia Prince of Wales, Læliocattleya Colmaniana, Dendrobium Dearei and Sanderæ, Brassocattleya Bianca (C. Mendelii × Bc. The Baron), a finely-grown Odontioda Bradshawiæ, Cœlia macrostachya, Odontioda St. Fuscien and Bradshawiæ, and a few good Odontoglossum crispum (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including forms of Cattleya Rothschildiana, C. Acis, C. Mercutio (Harrisoniana × Rothschildiana), Læliocattleya Henry Greenwood, Invincible, and Lc. Queen-Marie (Lc. Walter-Gott × C. Dowiana aurea), most like the former in shape, and with peculiar light bronzy-green sepals and petals and a broad ruby-purple lip, Vanda cœrulea, Bulbophyllum nudiscapum, Cirrhopetalum vaginatum, Oncidium incurvum album, the rare O. Sanderæ, Odontoglossum grande, Odontioda Thwaitesii, and others (Silver Banksian Medal).

Mr. C. F. Waters, Balcombe, sent a good form of Læliocattleya Fleury (Lc. Issy × C. Dowiana aurea), having bronzy yellow sepals and petals tinged with rose, and the lip three-lobed, with the front lobe purple and some yellow lines on the disc.

At the meeting held on September 26th Orchids were less numerous, but choice in quality, one gaining a First-class Certificate and three others Awards of Merit, while a Silver Flora Medal was given to a fine group.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), J. Wilson Potter, F. J. Hanbury, R. A. Rolfe, T. Armstrong, Walter Cobb, J. Charlesworth, H. G. Alexander, C. H. Curtis, J. E. Shill, Arthur Dye, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, and C. J. Lucas.

FIRST-CLASS CERTIFICATES.

SOPHROCATTLEYA SIR MERVYN BULLER (Sc. Wellesleyæ × C. Empress-Frederick).—A brilliant hybrid, the flower being large and most like the Cattleya hybrid in shape, with apricot-yellow sepals and petals, somewhat veined and dotted with rose, giving it a glowing tint, and the lip copper-red in front, and yellow in the throat, with some red veining on the disc. This brilliant acquisition, one of the finest Sophrocattleyas, was exhibited by Messrs. Armstrong & Brown.

AWARDS OF MERIT.

BRASSOCATTLEYA OBERON VAR. MAJESTIC (Bc. Veitchii × C. Schrœderæ).—A magnificent form, bearing very large flowers of excellent shape, and the colour warm rose-pink, with a large yellow disc to the broad and well-fringed lip. Exhibited by Messrs. Sander & Sons.

CATTLEYA RHODA LANGLEY VAR. (Iris × Hardyana).—A brilliant form, most like the second parent in shape, and having the sepals and petals ruby crimson with a flush of yellow and the lip intense crimson, with some yellow lines at the base. Exhibited by Messrs. Flory & Black.

LÆLIOCATTLEYA LADY MANNINGHAM BULLER (Lc. Thyone × luminosa).—A very finely-shaped flower, with canary yellow sepals and petals, and the lip maroon purple, with a paler much crisped margin, and some yellow lines in the throat. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent five seedling forms of Cattleya Venus, showing much variation, the sepals and petals being of various shades of bronze, and the lip crimson, with yellow veining on the disc.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, in which three beautiful examples of Odontoglossum crispum xanthotes were a feature, other Odontoglossums including some good O. grande, a fine O. Rolfeæ, and several other blotched forms. There were also good forms of Cattleya Iris, Antiope, the richly-coloured C. Rhoda spectabilis, and C. Hesta, Miltonia spectabilis Moreliana, and M. Bleuana, Brassocattleya Maroniæ, Læliocattleya Barbarossa, Sophrolælia Felicia var. luminata, with very broad rosy mauve sepals and petals, and a claret-purple

lip, with a yellow throat, Cypripedium Niobe Westonbirt var., C. Caduceus, and other good things (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent good examples of Cattleya Ajax and C. Armstrongiæ, and a promising hybrid between Cypripedium Ville de Paris and C. insigne Harefield Hall var.

Mr. H. Dixon, Wandsworth Common, sent Sophrocatlælia Pandora var. excelsior (Sl. heatonensis × C. Dowiana Rosita), having rose-purple flowers with a darker lip, and some yellow in the throat.

Messrs. Flory & Black, Slough, sent Læliocattleya Soulange, having rose-purple flowers with a darker lip, and C. Rhoda Langley var.

Mr. C. A. Harrison, Sharnbrook, Bedfordshire, sent Brassocattleya Ilene majestica, a large rose-coloured form, and Læliocattleya Thyone Harrison's var., with yellow sepals and petals, and a dark reddish purple lip.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent two good examples of Cattleya Enid, and two forms of Læliocattleya luminosa aurea, one having much darker yellow segments than the other, which may have been due to the age of the flower.

Messrs. Sander & Sons, St. Albans, staged a good group, containing Læliocattleya Irensis (C. Iris × Lc. bletchleyensis), Lc. St. Gothard, good examples of Cattleya Iris, Adula and Enid, the beautiful C. Lady Veitch, C. Rothschildiana brugensis, Brassocattleya Somme (Bc. Maroniæ × C. Schrœderæ), a pretty light-coloured hybrid, Odontioda Devosiana, Cypripedium Germaine Opoix, the interesting little Sigmatostalix radicans, Bulbophyllum nudiscapum, Sarcopodium elongatum, and other interesting things.

Mr. C. F. Waters, Balcombe, sent Cattleya Mastersiana × Dowiana aurea, a rather small form, and most like the former in colour.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on September 7th, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Forster, W. Gilden, A. R. Handley, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Cattleya Sybil var. Georgius Rex (iridescens × Dowiana aurea), a flower of good shape and colour, with yellow sepals and petals and crimson lip; from W. R. Lee, Esq.

Læliocattleya St. Gothard var. Hamilton (Lc. Gottoiana × C. Hardyana), a large flower, of good colour, and with brilliant lip; from J. Walker, Esq.

Cattleya Venus var. Evansiæ, a splendid flower, of good form and substance; from Mr. J. Evans.

AWARDS OF MERIT.

Cattleya Naidia var. Ruby, and C. N. rubella (Hardyana × iridescens); from R. Ashworth, Esq.

Cattleya Sybil var. Lord Kitchener (iridescens × Dowiana aurea), and C. Anubis; from W. R. Lee, Esq.

Cattleya Sybil Houghton's var. (iridescens × Dowiana aurea); from T. Houghton, Esq.

Large Silver Medals were given to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for very fine groups, the latter consisting chiefly of Cattleyas and Cypripediums, and the former some fine Odontoglossums and Miltonias in addition.

Silver Medals were awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison), and to Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups, the latter including examples of Oncidium incurvum album and Anguloa Cliftonii.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), received a Special Vote of Thanks for a fine exhibit of forty-six plants of Cypripedium Maudiæ, with good examples of Vanda cœrulea and Epidendrum vitellinum autumnale.

Interesting exhibits were staged by F. Houghton, Esq., Houghton (gr. Mr. W. Maddock); John Walker, Esq., Pendleton; Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); Messrs. J. & A. McBean, Cooksbridge; Messrs. J. C. Cowan & Co., Gateacre; Messrs. Keeling & Sons, Bradford, and Mr. John Evans, Lymm, several of which appear in the above list of awards.

At the meeting held on September 21st, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. J. Ellwood, R. Handley, A. Hanmer, D. McLeod, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum Hamilton, a fine round flower, heavily blotched, and with large flat lip; O. eximium xanthotes var. Citrona, a good form with very delicate markings; Cattleya Gaskelliana var. Reine Blanche, a well-set flower, with pure white sepals and petals, and yellow lines on the lip, and Læliocattleya Sakharoff; from Dr. Craven Moore.

AWARDS OF MERIT.

Cattleya Venus var. Conyngham (Iris × Dowiana aurea), C. Naidia

var. Conyngham (iridescens × Hardyana), and C. Adula var. Conyngham (bicolor × Hardyana); from Dr. Craven Moore.

Cattleya Venus var. Mary Gratrix (Iris × Dowiana aurea), and Cypripedium Actæus var. Majestic; from S. Gratrix, Esq.

Cattleya Venus var. Cyclops: from R. Ashworth, Esq.

Cypripedium Dallas Carter Place var. (Curtisii superbum × Fairrieanum; from Tom Worsley, Esq.

Odontonia Scylla (Miltonia vexillaria × Odm. cirrhosum); from Messrs. J. & A. McBean.

A Large Silver Medal was awarded to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. F. Arnold), for a very beautiful group of Cattleyas and Odontoglossums.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for a group of choice Cypripediums, and to Messrs. Hassall & Co., Southgate, for a fine group of hybrid Cattleyas of the bicolor and Hardyana groups, showing great diversity in form and colour.

Interesting exhibits were staged by S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden); Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); Messrs. Sander & Sons, St. Albans; Messrs. J. & A. McBean, Cooksbridge; Messrs. Keeling & Sons, Bradford; and Mr. W. Shackleton, Bradford, some of which appear in the above list of awards.

SARCOPODIUM CŒLOGYNE VAR. 'VIRIDE.—A distinct and striking form of Sarcopodium Cœlogyne has just flowered in the collection of Col. Stephenson Clarke, Borde Hill, Sussex (gr. Mr. H. J. Gillett), which is characterised by having light green sepals and petals, with only a few brown markings at the extreme base, thus differing greatly from the type, in which these organs are spotted and marbled throughout with red-brown. The species is a native of Moulmein, where it was originally discovered by the Rev. C. S. Parish, and was described by Reichenbach in 1871, under the name of Dendrobium Cœlogyne (*Gard. Chron.*, 1971, p. 136), from materials communicated by J. Day, Esq., of Tottenham, the author remarking: "The outside appearance is very much like that of some Cœlogyne, such as C. brunnea." It was in allusion to this character that the specific name was given. A drawing was made by Mr. Day (*Orch. Draw.*, xvii. t. 38), from which it appears that the plant was obtained from Messrs. Hugh Low & Co. A fine drawing was also made by Mr. Parish, in November, 1870, on which he wrote, "Ought to be separated from Dendrobium," while on the corresponding dried specimen he added, "It is no Dendrobium, and should be removed to another genus; in some respects it resembles a Bulbo-

phyllum." In November, 1899, it received an Award of Merit from the R.H.S., when exhibited by Messrs. Hugh Low & Co., and in a record (*Gard. Chron.*, 1899, ii. p. 367) we find the note that it is often called Bulbophyllum Cœlogyne in gardens. It belongs to Lindley's genus Sarcopodium, whose history has already been given, with an enumeration of the species (*O.R.*, xviii. pp. 237-240), and is nearly allied to the Himalayan S. amplum, Lindl., differing in having considerably larger flowers. The species, now known as Sarcopodium Cœlogyne, Rolfe, is rather rare in cultivation.—R.A.R.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during October, on the 10th and 24th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on October 5th and 19th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m. The succeeding meeting is fixed for November 2nd.

A photograph of the fine specimen of Cymbidium Humblotii from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, which received a First-class Cultural Certificate and a Silver Medal at Manchester on July 20th last, has been sent by Mr. E. Rogers, who remarks that they were much interested in the note at page 218.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

C.A.—3, Lepanthes species not identified; 4, Oncidium, identical with an unnamed species previously received from Colombia. We have not yet had time to look among the species known only from Reichenbach's descriptions. Please send a piece of the other heteranthous Oncidium mentioned.

E.W.—A chronological list of the principal works and papers relating to hybrid Orchids, beginning with Dean Herbert, in 1847, appears in *The Orchid Stud Book*. It is the most complete list that we know of.

H.B.—The note is unavoidably postponed.

C. W.—Dendrobium longicornu, Lindl., a well-known Indian species.

Photograph received, with thanks. E.R.

The Orchid Review

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OUR NOTE BOOK.

IT was almost reminiscent of the days before the war to see such a magnificent group of autumn-blooming Orchids at the Royal Horticultural Hall as the one staged by Messrs. Charlesworth on October 24th, and the fact that it was awarded a Gold Medal affords an index as to its quality. Its composition is indicated in our report on page 276. It is interesting in these days of extensive hybridisation to find the brilliant Epidendrum vitellinum represented in such quantity, but nothing has yet been found to supersede it in its own particular colour. As a parent it has not been a success, for a good many attempts to cross it have been made without result (see *O.R.*, xiv. p. 318), and none of the few hybrids that have been raised can be called a success. It is too distinct, and its abnormally small lip is not a good character to start with, though if its brilliant orange colour could be transferred to some of the large-flowered species of the Cattleya group some really fine things might be anticipated.

The hybrids of Cattleya Dowiana, to which we alluded at page 233, continue their successful career, for seven out of the nine Orchids certificated by the R.H.S. at its October meetings belong to the Cattleya group, and all contain C. Dowiana in some form or another, while in three cases it comes in through both parents. It is evident that the search for a yellow Cattleya will not go unrewarded, for in C. Thebes var. Britannia (Adula × Dowiana aurea), which gained for Messrs. Sander a First-class Certificate on October 19th, the sepals are bright cowslip yellow, which sets off the ruby-red lip to great advantage. It is interesting to be able to record such undoubted progress.

The allusion to C. Dowiana coming in through both parents, or what has been called by Mendelians a "double dose" of any desired quality, reminds us that of the three hybrids above alluded to, one had bronzy yellow sepals and petals, one white, and one blush white, and it is doubtful whether an examination of the whole of the seedlings from the three batches would increase the proportion of yellows. The fact is, this

particular quality of Cattleya Dowiana is very difficult to reproduce, as hybridists long ago discovered, and Mendelian research has not done anything to hasten the process. In fact, if there were any such short cut to success as is implied by the phrase, it would have been discovered by hybridists long ago, as they have practised recrossing to obtain any desired quality from time immemorial.

An article entitled "Creating a yellow Cattleya on Mendelian principles" has, we believe, yet to be written, though a similar one in which the subject was not an Orchid reached us some time ago, but, being outside our particular sphere, we were unable to utilise it. It dealt, however, with the subject of breeding generally, and rather suggested that breeders were working on wrong lines, and would be more successful if they conducted their experiments on Mendelian principles. But what these principles were, or at all events how to apply them practically, was not explained. Whatever Mendelism is or is not—and there have been many definitions—it provides no means of controlling the elements that it has to work with. If it were able to eliminate undesirable qualities there would be something hopeful about it, and even if it could foretell exactly what would happen in any given experiment the knowledge would be useful, and prevent many disappointments, but it can neither do the one nor the other. It tabulates the results of hybridisation, from which it assumes the existence of characters that are indestructible, and that can only be re-shuffled according to the law of chance, and it proclaims the existence of laws that it is unable to define. Mendelism, in short, is a species of symbolism, representing nothing more concrete than its own supposedly indestructible units, which can be subdivided and recombined according to circumstances, and which are as shifting as the sands on the sea-shore.

If Mendelism could explain how a Cattleya like C. Dowiana arose from an ancestral purple species of the labiata group, it might also tell us why the yellow colour is so difficult to perpetuate, but this it has not even attempted. And no believer in evolution can doubt that the species has so arisen, and that the peculiar character of its hybrids is due to reversion, the opportunity for which arises when it is hybridised with a purple species. But there is another result of this combination of purple with yellow that has already been noticed, namely, a tendency to produce whites, at all events in the sepals and petals, and this takes place both in nature and under cultivation. There are wild forms of C. Hardyana (Dowiana × Warscewiczii) with white sepals and petals, and when the latter are recrossed with C. Dowiana the yellow does not return, as was seen in the hybrid called Prince John, for which Messrs. Armstrong & Brown received

an Award of Merit the other day. The same thing has occurred in the case of other albinos Cattleyas when crossed with C. Dowiana, and, we believe, also when a purple form has been crossed in the same way, but of this we should be glad of further evidence, as the question has again come to the front.

We have now a wealth of beautiful albinos, which promise to change the character of our collections, and it is pretty clear that many of the difficulties formerly encountered in their production have been solved. One such difficulty was the paucity of materials to work with, and the consequent use of parents that were not absolutely white, this often resulting in the production of purples. But there have been cases of reversion where both parents were white, or at all events white from the cultivators' standpoint, and there have been cases of the production of both white and purple forms from the same seed-pod. It is further certain that at some time or other this kind of thing occurs in nature, where albinos are seldom found in quantity. Even if a batch of albinos were found wild under such circumstances as to suggest that they were the result of the self-fertilisation of a white form (as sometimes occurs in gardens), there would still be the original white parent to account for, and this invites an inquiry into the circumstances under which it has arisen. Something must have happened to eliminate the purple colour.

The whole question is raised in a note on page 270, where Cattleya Corona alba is briefly described, and would form the subject for a very interesting discussion. Hybridisation is making enormous strides on every hand, and an exchange of opinions would probably accelerate progress. We hope that some of our readers will give us the benefit of their experience.

PLEIONES AT KEW.—The autumn-blooming Pleiones, P. lagenaria, maculata, and præcox, are grown in quantity at Kew, and are now producing a very fine display. Perhaps the gem of the collection is a plant of the albino, P. præcox alba, bearing two of its beautiful white flowers, with a tinge of sulphur on the disc of the lip. It appeared about five years ago in a batch of the species imported from Darjeeling (*O.R.*, xix. p. 335), and is the only plant known to us in cultivation. Messrs. King & Pantling, however (*Orch. Sikkim*, p. 141), remark that occasionally a specimen occurs with its flowers pure white. The plants at Kew are grown in pans, under the usual treatment. The history of the genus, which contains a good number of additional species, has already been given (*O.R.*, xi. pp. 289-292).

ABNORMAL CATTLEYAS.

ABNORMAL forms of Orchids frequently appear in our collections, and the question of their constancy or otherwise is often a matter of interest. Cattleya labiata seems rather subject to this abnormal development, and the annexed figure represents a curious form that flowered some years ago in the collection of the late Reginald Young, Esq., Sefton Park, Liverpool. The dorsal sepal is broad and petal-like, and the petals have a purple blotch near the apex, and a smaller one on the lateral sepals. A

Fig. 46. CATTLEYA LABIATA YOUNGIANA.

still more curious form is preserved at Kew. In one flower ot the raceme there are three sepals, three petals, and a straight column with three anthers, each with the normal number of pollinia; while in the other there are three sepals and three lips (one not quite perfect), the column being much reduced and without an anther. In the first the side lobes of the lip have reverted to an ancestral condition, becoming anthers, while in the second the single anther has become petaloid, assuming the character of the side lobes of the lip.

Some freaks are constant from year to year, and may even reproduce themselves by seed, on which points some interesting information is furnished

by Sir Jeremiah Colman, Bart., Gatton Park, together with flowers of C. labiata Lorna Fielden, and one of its hybrids, called C. Portia Lorna Fielden. The former has a broad yellow band down the inner halves of the lateral sepals, a character belonging to the lip, and the plant has flowered several times, and always shows the same peculiarity. In the hybrid, of which the seed parent was a normal C. Bowringiana, the two inner halves of the lateral sepals are exactly like two half lips, both in the yellow line and in the expanded front lobe, with its richer purple colour. The dorsal sepal has also the shape and general appearance of a petal. Many

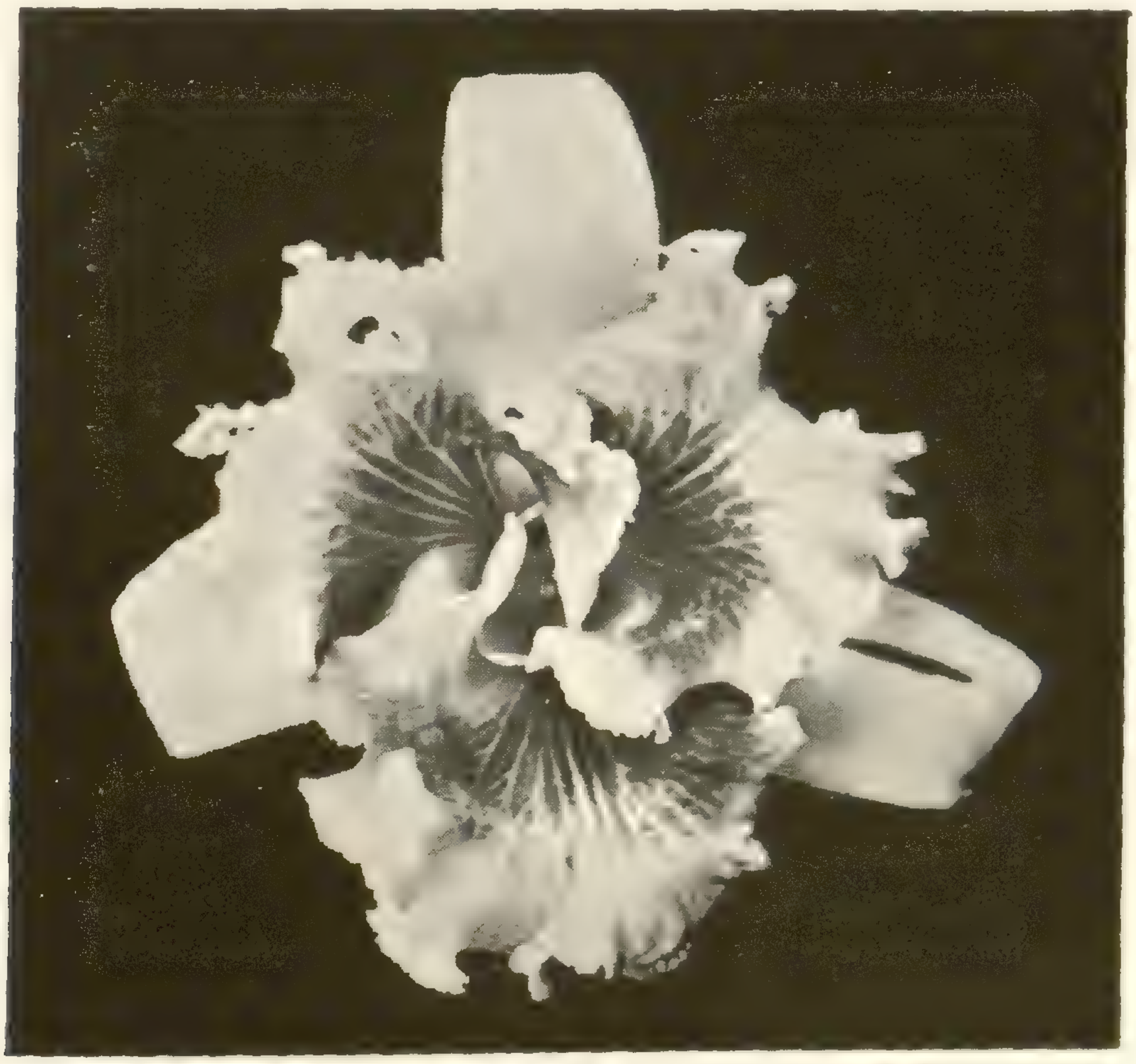

Fig. 47. Cattleya Mendelii with three lips.

seedlings of the batch have flowered, and all are said to have shown some of the influence of the pollen parent, which shows how undesirable qualities may sometimes be perpetuated.

Freaks may be decidedly ornamental in character, as in a form of C. Mendelii, here figured, which appeared some years ago in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. The flower consists of three sepals and three lips, the latter with the typical yellow markings on the disc and the front lobe rose-pink (colours not shown in their true value in the photograph). There is also a yellow streak on one of the sepals. Many other curious cases among Cattleyas could be mentioned, and examples have been recorded in most of the other genera in cultivation, both in our own and in other works.

EPIDENDRUM VITELLINUM VAR. AUTUMNALE.

THE magnificent group of Epidendrum vitellinum autumnale staged by Messrs. Charlesworth & Co. at the R.H.S. meeting held on October 24th serve to call attention to one of the most effective autumn-blooming Orchids, and one whose history is very imperfectly known. It is evidently an old plant in gardens, though we have failed to trace its origin. The earliest record that we know of dates from November, 1902, when a group of three plants from the collection of William Thompson, Esq., Walton Grange, Stone, bearing six fine inflorescences each, received a Cultural Certificate and a Bronze Medal from the Manchester & North of England Orchid Society (*O.R.*, x. p. 368).

It must have been a plant of very similar character that was noted in 1884 in the *Orchid Album* (iii. sub. t. 126). Mr. B. S. Williams there remarked that a very fine spike had been received from H. Shaw, Esq., of Burton. It was eighteen inches in height, and bore twenty-one orange-scarlet flowers of good size and substance, being certainly the best spike that had ever come under his notice. Mr. Shaw called it E. vitellinum giganteum, and stated that the plant had borne five spikes equally as good as the one sent. The note concluded: "There is no doubt that it is a gigantic form of the old species, much finer than some of those called majus, which generally flower in spring and summer, while this one flowers in December, which fact alone makes it a valuable acquisition, as we have so few Orchids of this colour blooming at that time of year."

The original E. vitellinum giganteum appeared some years earlier (*Warn. Sel. Orch.*, iii. t. 27), but is only an exceptionally fine E. vitellinum majus, which latter name is cited as synonymous, with three published figures, and it is distinctly stated that the flowers are produced during the spring and summer months. The latter point was confirmed by Mr. Day, who painted E. vitellinum majus in June, 1867 (*Orch. Draw.*, xii. t. 45), and remarked: "At last we have the real E. vitellinum majus, after repeated disappointments." He records it as collected in Mexico, on the Volcano of Totontepeque, at at elevation of 9000 feet, growing on oak trees, "as recorded by Lindley many years ago," and finally remarked: "It is very different from the common small variety, which comes from Guatemala, and always blooms from the young growth before it is nearly finished, while majus flowers from the last year's bulb."

This takes us back to the earliest published figure of the species (*Bot. Reg.*, 1840, t. 35), where it is remarked of E. vitellinum: "A dried specimen in Mr. Lambert's herbarium conveyed the first knowledge of the

existence of this beautiful plant, and for many years no additional information was received. It was afterwards found without a locality among Karwinski's dried plants in the Munich Museum, and in September, 1839, the specimen now figured produced its flowers in Mr. Barker's collection at Birmingham. Neither this, however, nor any of the dried materials, conveyed a true idea of the natural appearance of this species when in health and flowering under favourable circumstances. It was not till specimens, collected on the Cumbre of Totontepeque in Mexico, at the elevation of 9000 above the sea, were received from Mr. Hartweg, that I had any conception of the superb appearance of the plant. One of them now before me has a spike covered with fifteen large orange-coloured flowers, all expanded at once, over a space of more than six inches in length, and forming a most conspicuous object."

This is clearly the plant to which Mr. Day alludes, though the varietal name did not originate with Lindley. It appears to have been published in 1866 (*Fl. Mag.*, t. 261), when plants flowered with Messrs. James Veitch & Sons, and it is briefly remarked that it is, "as its name implies, a larger variety of the well-known E. vitellinum, with brighter colour, and in every way an improved form." The note about the different flowering period was added by Mr. B. S. Williams when figuring the plant (*Orch. Alb.*, i. t. 4), and the history was subsequently added by Messrs. Veitch (*Man. Orch.*, vi. p. 126). It was collected by M. Roezl, near the Vera Cruz and Mexico Railway, a few leagues from Orizaba, growing upon old and stunted oaks in a district where it rains regularly from one to two hours a day from May to October, and where from December to February dense fogs are common, and frosts are by no means rare during the night, but in the hottest months the temperature ranges from 60° to 70° Fahr. It is added: "From that time to the present E. vitellinum majus has been universally recognised as the finest Epidendrum of its colour in cultivation; the original type is now but rarely seen."

Another turn of the wheel seems to have brought the original type to the front again, for the so-called variety autumnale has all its characters. The original plant, it may be noticed, flowered in September, and in a batch of E. vitellinum autumnale a considerable variation in size may be seen, in fact some exactly match the old type. It appears to flower from the newly-made growth without resting, while var. majus rests during the winter and produces its flowers in the spring or early summer, a difference probably due to the conditions of its native habitat. The latter is probably a local or climatal variety, and chiefly differs from the old type in the time of flowering, though it is generally larger. Chapman remarks that as a rule plants in cultivation are called E. vitellinum majus, however poor in flower they may be (*Orch.*, p. 247). The name E. vitellinum

autumnale seems to be equivalent to Cattleya labiata autumnalis, the varietal name being used to indicate the time of flowering.

Whether there are certainly recognisable differences besides the time of flowering seems doubtful. Hartweg's specimens are exceptionally fine, but there are also large autumn-blooming forms, though we have no evidence as to the locality from which they came. R.A.R.

RESTREPIA FALKENBERGII.

AMONG the Orchids presented to Kew from the collection of Sir Trevor Lawrence, Bart., was one labelled Restrepia Falkenbergii, which on flowering proved to be Cryptophoranthus Dayanus, and the question has been raised what Restrepia Falkenbergii really is. It is rather a mysterious plant, which was described by Reichenbach in 1880 (*Gard. Chron.*, 1880, i. p. 224), but we have never succeeded in identifying it. The author remarked :—

"This new Restrepia is easily recognised by its strong growth, its unicoloured sheaths without blotches, its large leaves (my largest one 0·05, 0·09 m.), which are underneath almost totally bluish purple or with several stripes of that colour. The flowers are in the way of Restrepia antennifera, yellow with some white and purple. . . Who was its discoveror? I cannot say. It may have been discovered by M. Patin, in New Grenada. The two flowers he kindly gave me look admirable, and the purple stripes on the sides of the connate sepal are more conspicuous than in my last specimens. . . . My recent specimens were gathered by two fresh collectors, Messrs. Falkenberg and Schmidten. . . Mr. F. Sander has kindly sent sketches of flowers, dried specimens, some highly curious literary sketches, and a living Restrepia. . . It is a great satisfaction to name it in memory of Mr. Falkenberg."

This is not very definite, but the technical description shows it to be a true Restrepia. At all events the dorsal sepal is described as long caudate, with triangular base and a clavate apex, the petals much like the dorsal sepal, but shorter and narrower, and the lip pandurate—characters which do not apply to Cryptophoranthus. The plant is described as nearly eight inches (0·19 m.) high, and the leaf as cuneate oblong. These characters would suggest the original R. antennifera, H.B.K., not the spotted species which often does duty for it (which is really R. maculata, Lindl.). The dimensions are too great for R. striata, Rolfe, the other species with striped flowers. And there remains the question whether all the plants mentioned above are identical, a point that may be cleared up when the Reichenbachian Herbarium is accessible. R.A.R.

VANDA WATSONII.

VANDA Watsonii, which is here figured, is a very graceful little plant, with the general habit of V. Kimballiana, but differing in having a

Fig. 48. VANDA WATSONII.

short sac to the lip instead of an elongated spur, and in the front lobe being white and concave, with a yellow interior and crest and some red-

brown dots. The terete leaves are also rather more slender than in V. Kimballiana. It was introduced by Messrs. Sander & Sons, through their collector, W. Micholitz, who collected it in the interior of Annam at about 5000 feet elevation. It flowered for the first time in cultivation at the Royal Botanic Garden, Glasnevin, in the spring of 1905, and was dedicated to Mr. W. Watson, Curator of the Royal Botanic Garden, Kew (Rolfe in *Gard. Chron.*, 1905, i. p. 82). The annexed figure represents a small group grown in the collection of Sir George L. Holford, K.C.V.O., at Westonbirt, by Mr. H. G. Alexander, and shows well the general character, including the white pedicels, which are a marked character of the species. Like Vanda Kimballiana and V. Amesiana, it succeeds in a light position in the Intermediate house.

CATTLEYA BOWRINGIANA AND ITS HYBRIDS.

A VERY interesting group of cut flowers of Cattleya Bowringiana and its hybrids was exhibited at the R.H.S. meeting held on October 24th by Sir Jeremiah Colman, Bart., to illustrate the results obtained by hybridisation at Gatton. The species itself was represented by the varieties lilacina, cœrulea, and concolor, the latter a rather large light rose, form of fairly uniform colour, while of familiar hybrids we may mention Læliocattleya Parysatis, Cattleya Chloris, Browniæ Gatton Park var., an exceptionally fine form, Mantinii, Portia, and John Baguley, the latter a variety of C. Whiteleyæ. Of C. Portia we noted the varieties cœrulea and Lorna Fielden, the former reproducing much of the colour of C. Bowringiana cœrulea, and the latter having lip-like lateral sepals (this being more fully described at page 261). And there were two additions of exceptional interest. C. Beryl (Wendlandiana × Hardyana) is a decided advance on the former, and having a large well expanded rich purple flower with a pair of yellow eye-like blotches on the lip. C. Chloringiana (Bowringiana lilacina × Chloris) is most like the latter parent in general character, and having a similar purple blotch on the front of the lip. This, as Sir Jeremiah Colman points out, is an example of C. Bowringiana recrossed with one of its own hybrids, and we can now add a second, a hybrid from C. Bowringiana × Portia, having just flowered at Kew. It was purchased at a Sale by Messrs. Protheroe & Morris in 1913, with this record, and has purple flowers of intermediate shape, with a large obcordate whitish blotch on the lip. This may be distinguished as C. Portringiana. Sir Jeremiah remarks that he was prompted to send up these flowers to the R.H.S. by the interesting article in our last issue (pp. 237-239), and that but for war conditions he could have made up a really pretty group.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

NOVEMBER is probably the most trying month in the whole year for those who have the care of Orchids, and it is often difficult to maintain the conditions necessary to success, particularly with regard to light, which, in some districts, is at a premium during foggy weather. Light is one of the most essential factors in plant culture, and when the days are short, every means should be taken to keep the glass clean, and thus admit as much as possible of this all-important element. This is particularly applicable to those who are situated near large towns, where fogs and bad light often preponderate during this month, and who are severely handicapped as compared with those who live in districts with a clear and healthy outside atmosphere. Heat, air, and moisture are more under our own control, and we can use them in proportion to the amount of light obtainable, and in accordance with the requirements of the different departments.

TEMPERATURES.—As regards temperatures, the figures given last month will be applicable until the end of the year. If any change is made, it should be to slightly reduce the temperatures, as Orchids that are at rest must not be induced to start prematurely, whilst those that are growing must be encouraged to mature sound healthy growth. During spells of bright weather, however, the temperature may be allowed to run up slightly while the sun is upon the houses, and at the same time air should be carefully admitted, as fresh air is essential to plant life. Plants cannot exist on foul air any more than the cultivator, a matter that is sometimes overlooked by growers, and there are many enthusiastic amateurs who lose sight of these small details. There is one matter on which I think most Orchid growers can be congratulated at the present day, namely, on the number of plants cultivated.

DAMPING DOWN.—Very little damping down is now required, water being only used in sufficient quantity to maintain a humid atmosphere in those houses where plants are growing, and to counteract the dryness of the fire heat where it is necessary to maintain a warm temperature.

WATERING.—Too much stress cannot be placed upon care in the application of water to the plants during the winter months, as injury may arise from giving either too little or too much water. I am fully aware of the difficulty in maintaining uniform conditions in a large collection, but that is the ideal to be aimed at.

DENDROBIUMS of the evergreen section—which comprises such species as D. thyrsiflorum, densiflorum, Farmeri, and others—upon completing

their growths should be placed at the warmest end of the resting-house. They should not be kept so dry as those of the deciduous, or D. nobile section, as they have their fleshy leaves to maintain in a healthy condition. The house in which these plants are resting should not at any time fall below 55°, or much harm may accrue. Small seedlings should be placed at the warmest end of the house, and will require water more frequently than the larger plants, owing to their small receptacles. The cool-growing D. infundibulum and D. Jamesianum should for the winter months be placed in a light position in the Intermediate house. D. Dearei, and others of a similar nature, should have every encouragement to make free and healthy growth, by placing them in the lightest position in a warm house. Being evergreen, they must not suffer for want of water at the roots at any time. The deciduous Dendrobiums should be induced to rest as long as possible, water being given in sufficient quantity to maintain them in a a plump and healthy condition, but not enough to force them into growth. D. Phalænopsis and D. formosum will be in bloom, and when this period is passed they should be induced to take a rest of several months' duration, but sufficient water must be given to maintain their pseudobulbs in a healthy condition. These should also be placed at the warmest end of the resting-house.

CYPRIPEDIUMS.—Plants of the winter-flowering section will now be making a display, and where such species as C. insigne and its varieties, with many of the beautiful hybrids, are grown in quantity, there are few plants comparable to them for a winter display of flowers. The flower scapes, as they attain sufficient length, should be neatly staked. The earlier ones will have already been done, but some are much later than others in producing their flowers. The plants must be kept moist at the roots, for when the leaves are allowed to shrivel they soon decline in vigour, and rarely ever recover. Cypripediums resist fogs better, perhaps, than any other Orchid, a fact which make them so popular with those who reside in or near large towns.

CATTLEYAS AND ALLIES.—At the present time the autumn-flowering Cattleyas, both species and hybrids, will make this department quite gay, and there is much variety of colour, sufficient to satisfy the most fastidious taste. Repotting may still be done if the compost is in a decomposed condition, but at this late period extreme care is necessary in the application of water to the new material. Cattleyas whilst at rest must be watered with care, for if the materials are kept constantly moist, there is danger of the pseudobulbs turning black and decaying, while, if kept too dry, there is risk of the roots dying. When properly rested, these plants break into growth in the spring much stronger than when over or under-rested. The precise amount of rest required by each individual plant

varies to such an extent that it is impossible to lay down any hard and fast rule on the subject.

MASDEVALLIAS.—Those plants that were potted at the end of August or early in September will now be rooting freely, and making new growth, but they must still be watered sparingly, as should the compost become in a saturated condition, the plants will lose their roots, and in many cases their leaves also, and the plants will decline in health. M. tovarensis, whilst developing its lovely pure white flowers, enjoys a light position in a cool Intermediate house, where the extra heat is of great assistance. If the plants are still in the Cool house they should be removed at once.

ODONTOGLOSSUMS.—Plants of O. Uroskinneri, O. bictoniense, and others that are growing fast and pushing forth roots from the base of their growths, may be repotted, if necessary. These plants have thick fleshy roots, therefore the material should be used in a rough condition, and the plants not potted too firmly. They delight in slightly warmer conditions than Odontoglossums of the crispum section. O. citrosmum, having now finished up its pseudobulbs, will only require sufficient water at the roots to prevent shrivelling, as to flower it satisfactorily this plant must have a long rest. O. grande, O. Insleayi, O. Schillerianum, O. Rossii, and O. Cervantesii, although growing quite satisfactorily during the summer months in the Cool house, winter better in the Intermediate house, as the cool moist atmosphere of the former is not to their liking.

ANGRÆCUMS.—Angræcum sesquipedale is the best known species of this interesting genus. There are two varieties of this singular Orchid, one flowering in the autumn, the other in the spring. They require the warmth of the East Indian house all the year round, and a reasonable amount of atmospheric moisture should be retained about them at all seasons. Water should be given whenever the sphagnum moss in which they are grown becomes white for want of moisture, as continued drought is very injurious. These conditions answer the requirements of any of the large-growing Angræcums, as A. eburneum, A. Veitchii (of which there are also two varieties) and others of this class. The species of the smaller-flowered section, which bloom during winter and early spring, require the same conditions as regards heat and moisture. The miniature kinds are best suspended within a reasonable distance of the roof glass, and they succeed in shallow pans or baskets, in a compost of sphagnum moss. Careful watering is necessary at all times, and a close observation must be kept on the plants, as they are partial to particular positions and environment. A. Sanderianum succeeds best grown down on the stage in a fairly humid position.

PHALÆNOPSIS should have water applied to the roots, whenever they become dry, as if allowed to remain in this condition for any length of time

the health of the plants will be impaired, and the proper development of the flower spikes, now pushing up, will be hindered. Care should be taken that the water applied to these tender succulent plants is of the same temperature as the house in which they are grown.

SACCOLABIUMS AND ALLIES.—Although these old-world Orchids are not cultivated to the same extent as formerly, they are most desirable subjects. They will now have completed their growths, and, as root action ceases, the green tips of the roots become sealed over. When this occurs, careful waterings are necessary, in fact, only sufficient water will be required for some little time to keep the leaves plump and in a normal condition. Some species of Saccolabium and Aërides succeed in the warmest house; others delight in an intermediate temperature.

GENERAL REMARKS.—The chief points to be observed during the present month are the provision of a suitable atmosphere in the different houses, and the war against insect pests. Excessive fluctuations of temperature are injurious, and may even be fatal to some plants, so that the aim should be to maintain the required temperatures in each department, damping down just sufficient to give the required amount of moisture in the atmosphere, and giving a little air whenever the outside conditions permit. As regards insect pests, the thing is to destroy them whenever found, but the winter months afford a suitable opportunity for a general cleaning of the plants, so that, with the return of spring, they may resume their activity unimpaired. There may be difficulties in many establishments, owing to the great shortage of labour, but with perseverance these may generally be overcome.

CATTLEYA CORONA ALBA.—A flower of the beautiful Cattleya Corona alba (Mantinii × Hardyana), which received an Award of Merit from the Manchester Orchid Society on October 19th last, is sent by Mr. E. W. Thompson, gardener to Phillip Smith, Esq., Haddon House, Ashton-on-Mersey. It is fairly intermediate in shape, and has pure white sepals and petals, and a coloured lip, the apex and a narrow margin round the side lobes being crimson-purple, and the very broad central area yellow. Mr. Thompson remarks: "It is a plant that we have just purchased in flower, and I think it is unique. We are told that it has flowered out of a batch of coloured varieties, and is the only white one to flower yet. I have never heard of a Bowringiana hybrid, either primary or secondary, with white sepals and petals." It would be interəsting to know whether C. Hardyana or C. H. alba was the pollen parent; if the former it would show how white forms may sometimes arise; if the latter the coloured seedlings would illustrate a phase of reversion, for of course the C. Mantinii parent was purple.

ACIANTHUS SINCLAIRII.

THE New Zealand terrestrial Orchids are very rarely seen in cultivation, but a specimen of the interesting little Acianthus Sinclairii, Hook. f., has been sent to Kew by H. J. Elwes, Esq., with the remark that it was grown by Mr. Burton, Longnor Park, Salop. It is an inconspicuous little plant, only a few inches high, bearing a single cordate leaf and a spike of small greenish flowers, which, according to Mr. Cheeseman (*Trans. N. Zeal. Inst.*, vii. 349), are fertilised by small flies. He remarks: "On a warm sunny day it is almost impossible to watch a bed of this Orchid for any length of time without seeing numerous Diptera flitting from flower, busily engaged in robbing them of their sweets." The flowers are thus fertilised, for on fourteen plants bearing 87 flowers seen in one locality no fewer than 71 matured capsules, while a set from another locality had borne 47 flowers, of which 44 had ripened capsules. And he adds that when the plant is covered up, or allowed to expand its flowers in a room, the pollinia remain in their cells and never reach the stigma, which shows that insect aid is required. He has several times seen insects remove the pollinia, and on one occasion saw a pollen-mass left on the stigma, and he remarks that under natural conditions the flowers are so frequently visited that the pollinia are generally removed directly after the opening of the blossoms.

The mechanism by which fertilisation is effected is described. The column arches over the broad, slightly concave lip, and the latter has a pair of glands at the base which secrete nectar, which is stored up in the cavity just in front of them. The arrangement is such that an insect crawling into the flower to get at the supply of nectar can hardly avoid touching the points of the rostellum, and on withdrawing would bring away the viscid gland with the attached pollinia, to be in turn left on the stigma of the next flower visited.

The union of the pollinia with the glands of the rostellum is interesting, and shows how completely all the parts are adapted for the functions they have to perform. Long before the flower opens, each lobe of the anther splits gradually from base to apex, allowing the included pollinia almost to touch the upper part of the rostellate points. The pollinia then emit a number of excessively delicate thread-like projections, which reach the rostellum, and become firmly attached to it. So that, in a fully expanded flower, each set of pollen-masses is quite free from its anther cells, but they are firmly attached by their bases to their respective rostella, neither of which can be removed without bringing away the pollinia. R.A.R.

CATTLEYA FABIA VAR. VIGERIANA.

CATTLEYA Fabia, the hybrid between C. labiata and C. Dowiana aurea, is undoubtedly one of the most popular and beautiful of autumn-blooming Orchids, and the variety Vigeriana, here figured, is the most richly-coloured form that we have seen. The original form was raised by Messrs. James Veitch & Sons, flowering in 1894, and the variety by M. Ch. Maron, of Brunoy, France, some nine years later. In the latter case the pollen parent was C. labiata flammea, one of the Peetersii or marmorata

Fig. 49. CATTLEYA FABIA VAR. VIGERIANA.

set, which accounts for the exceptionally dark colour. The sepals and petals are deep carmine-rose, and the lip darker, with the veining dull orange rather than yellow. It was originally exhibited at Paris as C. Vigeriana, in November, 1901, and received a First-class Certificate. A year later it received an Award of Merit from the R.H.S. as C. Fabia Vigeriana, and in October, 1915, it gained a First-class Certificate. The annexed figure represents a finely-grown plant, bearing about sixteen flowers, which was exhibited at Paris by M. Maron in November, 1907.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 10th, and brought together a good display of Orchids, and the awards consisting of six medals, and three Awards of Merit.

Orchid Committee present:—Sir Harry J. Veitch (in the Chair), J. O'Brien (Hon. Sec.), Sir Jeremiah Colman, Bart., Stuart H. Low, R. A. Rolfe, F. J. Hanbury, R. G. Thwaites, Pantia Ralli, T. Armstrong, Walter Cobb, J. Charlesworth, J. Cypher, C. H. Curtis, W. H. White, S. W. Flory, W. Bolton, C. J. Lucas, R. Brooman White, Gurney Wilson, and Clive Cookson.

AWARDS OF MERIT.

CATTLEYA VENUS ORCHIDHURST VAR. (Iris × Dowiana aurea).—A brilliant hybrid of the C. Iris type, both shape and colour being excellent. The sepals and petals are bronzy yellow with paler margins, and the lip rich ruby red, with deep yellow veining on the disc. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM PERCULTUM VAR. NICATOR (armainvillierense × Rolfeæ).—A handsome variety, bearing two spikes, each with eleven flowers, the segments being broad and of good shape, and the colour reddish claret, margined with white, while the broad lip is white in front, with some ruby-red markings round the yellow crest. Exhibited by Ernest R. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson).

SOPHROCATLÆLIA LUTETIA (Scl. Sandhaghe × C. Fabia).—A brilliant hybrid, the flower being large and most like the Cattleya in shape, while the colour is crimson with a bronzy shade, and the lip claret with some orange veining in the throat. Exhibited by Messrs. Charlesworth & Co.

GENERAL EXHIBITS.

R. Windsor Rickards, Esq., Usk Priory, Monmouth, sent an interesting little group of Cypripediums, with a good example of Odontoglossum Albion rubescens (percultum × Rossii rubescens). The Cypripediums included good forms of C. Curtisii, Cavalier, nito-Cynthia, Curlew, Mrs. Alfred Fowler, and C. Eudora (Gowerianum × Mary Beatrice), the latter a large and richly-coloured flower of good shape.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), showed two distinct Læliocattleya luminosa aurea, one having canary-yellow sepals and petals, the other with those organs primrose yellow, the lip being dark yellow in each case.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group of choice things, including Cattleya Iris, Fabia, Armstrongiæ, Saturn (O'Brieniana alba × Gaskelliana alba), C. Claesiana alba, C. Acis Orchidhurst var. (Maronii × Dowiana aurea), having yellow sepals and petals, and a dark crimson lip with lighter veining, Brassolælia Veitchii, Odontoglossum Victory var. Sir Douglas Haig, a fine variety, having bronzy claret segments margined with white, and a promising Læliocattleya from Cattleya Warscewiczii and Læliocattleya Greenwoodii, most like the latter in general character (Silver Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the interesting Odontonia Cybele (M. candida × O. cirrhosum), fairly intermediate in character, and having a triangular, acuminate white lip, Brassocattleya Veitchii and the white var. Queen Alexandra, Odontioda Charlesworthii and O. Brewii nigra, Odontoglossum armainvillierense xanthotes, Miltonia vexillaria Hesperia, a cross of M. v. Leopoldii and similar in type, good examples of Læliocattleya Serbia, Salonica, and Numidia, Cattleya Hardyana, C. Miguelito (Octave-Doin × Dowiana aurea), a charming thing, having white sepals and petals tinged with lilac, and a claret-purple lip with yellow veining (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a brilliant little group of Cattleyas, including several plants of C. Adula, Sylvia, Beatrice, and Hassallii, C. Sylvia alba (Fabia alba × Dowiana aurea), with white sepals and petals and a rich crimson lip, Brassocattleya Maronii, and Læliocattleya Zena (Lc. Ophir × C. iridescens), a charming little thing with yellow sepals and petals and a rosy crimson lip (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a bright group, including some good Cattleyas, Læliocattleyas, and other interesting things, Lc. Olive being a very promising hybrid derived from C. Adula × Lc. callistoglossa (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a pretty little group, including some good examples of Cattleya Hardyana, C. Rothschildiana, C. Cowaniæ alba, and others, with a good example of Cymbidium Hanburyanum (erythrostylum × Tracyanum), bearing a spike of honey-yellow flowers lined with red-brown, and with darker markings on the lip (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a showy group, including fine examples of Cattleya Mantinii, C. Fabia, C. F. alba, the beautiful albino C. Lady Veitch, C. Sir Douglas Haig (Warscewiczii × Sylvia), bearing six fine flowers, having deep rose sepals and petals, and a ruby purple lip with some yellow markings in the throat, Cœlogyne Mooreana, Brassocattleya Oberon, Rhynchostylis retusa, Cypripedium Rossetti, and others (Silver Banksian Medal).

Messrs. Flory & Black, Slough, showed a fine example of Cirrhopetalum Rothschildianum, the finest species of the C. Collettii group.

Mr. C. F. Waters, Balcombe, showed a beautiful example of Vanda cœrulea, bearing a spike of fifteen flowers, tessellated with blue on a lighter ground, one of the best types.

At the meeting held on October 24th Orchids formed the leading feature, and produced a very fine display, including one magnificent Gold Medal group, while four other medals were awarded, together with two First-class Certificates, and four Awards of Merit.

Orchid Committee present:—Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), W. Bolton, S. W. Flory, W. H. White, Arthur Dye, C. A. Curtis, H. G. Alexander, W. H. Hatcher, J. Charlesworth, Walter Cobb, T. Armstrong, E. R. Ashton, Pantia Ralli, F. J. Hanbury, Sir J. Jeremiah Colman, Bart., C. J. Lucas, R. Brooman White, and R. A. Rolfe.

FIRST-CLASS CERTIFICATES.

CATTLEYA THEBES VAR. BRITANNIA (Adula × Dowiana aurea).—A brilliant acquisition, the flower being of excellent shape and substance, with bright cowslip yellow sepals and petals, and the lip ruby-red, with paler margin, and the smaller articulate side lobes light yellow. Exhibited by Messrs. Sander & Sons.

ODONTOGLOSSUM MENIER (gandavense × amabile).—A fine hybrid, bearing a spike of eight large flowers, light claret-brown in colour, with the margins and tips of the sepals and petals whitish, and a broad white apex to the lip. Exhibited by Ernest G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. E. Stevenson).

AWARDS OF MERIT.

BRASSOCATTLEYA MARS VAR. XANTHOLEUCA (Bc. Leemaniæ × C. Maggie-Raphael alba).—A finely-shaped and beautiful flower, the colour blush-white, shading off to pink at the margin, and the broad lip with a very large orange yellow disc. Exhibited by Messrs. Flory & Black.

CATTLEYA ALEXANDRA (Carmen × Hardyana).—A finely-shaped and richly-coloured hybrid, most like C. Hardyana in general character, and having rosy-mauve sepals and petals, and a ruby-red lip, with two orange-yellow blotches on the sides of the throat, and some yellow lines below. Exhibited by Messrs. Flory & Black.

CATTLEYA FABIA MEMORIA LORD ROBERTS (labiata × Dowiana aurea). A very large and richly-coloured form, having purple-rose sepals and petals, and an intense purple-crimson lip, with a yellow disc and some yellow lines behind. Exhibited by Messrs. Sander & Sons.

CATTLEYA PRINCE-JOHN ORCHIDHURST VAR. (Hardyana alba × Dowiana aurea).—A very beautiful hybrid, most like the former in

general character, and having white sepals and petals, and the front and sides of the lip rich crimson, with a very large, light yellow disc, and some yellow veining at the base. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a very interesting group, including Cattleya labiata cœrulea, C. Beryl (Wendlandiana × Hardyana), a fine purple-flowered hybrid, with two yellow eyes on the broad open lip, six plants of C. Alcimeda (Bowringiana cœrulea × Gaskelliana cœrulescens), showing much variation and having lilac-coloured sepals and petals, and the front of the lip slate-blue, and a series of cut blooms of C. Bowringiana and its hybrids that are noted on page 266. He also sent an interesting New Guinea Bulbophyllum of the Ephippium section, with flowers recalling those of a Masdevallia.

Col. Stephenson R. Clarke, Borde Hill, Cuckfield (gr. Mr. Gillett), sent a small seedling Cattleya, closely resembling C. Bowringiana lilacina, having lilac flowers, with a violet-coloured band on the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group, to which a Gold Medal was awarded. The centre consisted of about a hundred finely-grown plants of Epidendrum vitellinum autumnale, interspersed with a few Odontoglossum crispum xanthotes, while behind was a series of O. armainvillierense xanthotes, and on either side a number of blotched hybrids, with some brilliant Cattleya Fabia, home-raised C. Dowiana aurea, and other Cattleyas and Læliocattleyas, noteworthy among them being C. Enid Reine Blanche, bearing a spike of four white flowers, with a purple veined blotch on the front of the lip. We noted also a few well-grown Odontoglossum grande, and several plants of the brilliant Disa grandiflora, from a batch of seedlings raised by Messrs. James Veitch & Sons. The group was very effectively staged, and was greatly admired.

Messrs. Hassall & Co., Southgate, staged a fine group, including examples of Cattleya Fabia, Adula, Sylvia, Venus, Moira, Minucia, Hardyana, Dupreana, and labiata, Brassocattleya Nestor (Bc. Maroniæ × C. labiata), Læliocattleya luminosa, Lc. Mita (C. Fabia × Lc. Golden Oriole), dark ruby-red with paler mottling, Lc. Rhenus (C. Dowiana × Lc. George Woodhams), and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including Cattleya Sylvia Italia (Dowiana aurea × Fabia), a pretty variety with primrose yellow sepals and petals, and a carmine purple lip with yellow veining, C. Rothschildiana, C. Katie, a beautiful example of C. Fabia alba, Læliocattleya Schilleriana Sanderæ (C. intermedia alba × L. purpurata alba), bearing a spike of five pure white flowers, and various others, with the graceful Dendrochilum filiforme, Xylobium squalens, Bulbophyllum grandiflorum, and the curious little B. mirum (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group, including plants of Cattleya Kienastiana alba (Lueddemanniana Stanleyi × Dowiana aurea), a charming variety, having white sepals, and the lip with large yellow blotches on the sides of the throat and some purple veining in front, C. labiata alba, C. l. Princess of Wales, white with a purple tinge on the disc of the lip, Brassocatlælia The Baroness (Lc. Ophir × Bc. Leemaniæ), a charming thing with buff sepals and petals and a bright yellow fringed lip, a fine form of Brassocattleya The Czar, and Cypripedium Princess Elizabeth (Silver Banksian Medal).

Messrs. Flory & Black, Slough, staged a pretty little group, including Cattleya Peetersii excelsior (Hardyana × labiata), a fine form, C. Ruby (Vesta × Dowiana aurea), a pretty hybrid, having yellow sepals and petals and a ruby-red lip, with some yellow veining, Læliocattleya Soulange Langley var., a very fine variety, and others, noteworthy among them being the rare Ione grandiflora, a very dwarf species with large purple flowers, and the rare Trias disciflora (Silver Banksian Medal).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on October 5th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. C. Cowan, Dr. Craven Moore, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hanmer, A. J. Keeling, D. McLeod, W. Shackleton, S. Swift, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Cattleya Hesta var. Conyngham (C. Warscewiczii Frau Melanie Beyrodt × Susanne Hye de Crom), a beautiful flower, with broad, pure white sepals and petals, with suffused colour in the lip, and Odontoglossum Empress Eugenie, a large round flower, white, with light violet shades and spots; from Dr. Craven Moore.

Cattleya Naidia Haddon House var. (C. iridescens × Hardyana), a well-shaped flower, with very round, maroon lip, and well-lined throat, and Brassocattleya Veitchii Queen Alexandra Haddon House var., a well-set flower, with pure white petals, sepals slightly tinged, and large well-fringed lip; from P. Smith, Esq.

Cattleya Venus var. Mary Gratrix magnifica, a large flower, with bronzy yellow sepals and petals, and deep crimson lip; from S. Gratrix, Esq.

Cattleya Venus var. Rossendale, a fine thing, with dark yellow sepals and petals, and deep crimson lip; from R. Ashworth, Esq.

Cypripedium Rossetti The Knowle var., one of the finest yet seen, the dorsal sepal with broad white margin: from J. Hartley, Esq.

Læliocattleya Serbia var. Leeana (Lc. St. Gothard × C. Enid), a large flower, of excellent shape and colour; from W. R. Lee, Esq.

Cypripedium Hitchinsiæ Keeling's var., a well-set flower, having a very round dorsal sepal, with porcelain white margin, and spotted base ; from A. J. Keeling & Sons.

AWARDS OF MERIT.

Cattleya Royal, and Cypripedium Success (Earl of Tankerville × Mons. de Curté) ; from R. Ashworth, Esq.

Odontioda Olympia (Oda. Charlesworthii × Odm. Olympia), and Odontoglossum eximium var. Queen of Roumania ; from Dr. Craven Moore.

Cypripedium Sentur (fulshawense × Lady Dillon ; from W. R. Lee, Esq.

Læliocattleya Houghtonii (C. Harrisoniana × L. Perrinii) ; from Messrs J. C. Cowan & Co.

Brassocattleya Ilene Risdene var. ; from Mr. Alwyn Harrison.

CULTURAL CERTIFICATE.

To Mr. E. Rogers, Bury, for a collection of Epidendrum vitellinum autumnale.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a very fine group of Cattleyas and Odontoglossums, with a few Cypripediums, Oncidium Forbesii and oblongatum, Dendrobium Phalænopsis album, and others.

A Silver Medal was awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for an interesting group of Cypripediums, including some promising home-raised seedlings.

A special Vote of Thanks was accorded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. E. Rogers), for an interesting exhibit, including two dozen fine plants of Epidendrum vitellinum autumnale, twelve Odontoglossum grande, and five O. grande aureum, with examples of Cattleya Gaskelliana alba, C. Ingramiæ superba, C. Armstrongiæ, and others.

Interesting exhibits were also sent by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. F. Arnold) ; P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson) ; W. R. Lee, Esq., Heywood (gr. Mr. E. Branch) ; S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison) ; J. Hartley, Esq., Morley (gr. Mr. W. Coupe) ; Messrs. Charlesworth & Co., Haywards Heath ; Messrs. J. C. Cowan & Co., Gateacre ; Messrs. Keeling & Sons, Bradford ; Messrs. Sander & Sons, St. Albans ; Mr. Alwyn Harrison, Sharnbrook, and Mr. D. McLeod, Chorlton-cum-Hardy, several of which appear in in the above list of Awards.

N.B.—The plant called Læliocattleya Sakharoff at page 254 should read Lc. General Sakharoff (C. Gaskelliana × Lc. callistoglossa).

At the meeting held on October 19th the members of Committee present were : Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth,

D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. Hanmer, Alwyn Harrison, A. J. Keeling, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.). The meeting was a highly successful one, and produced a very brilliant display of autumn-blooming Orchids.

FIRST-CLASS CERTIFICATES.

Cattleya Regina (Dupreana × labiata), a large flower, of good form and colour; Odontoglossum armainvillierense var. Reine Blanche, a round flower with broad flat lip; O. eximium xanthotes var. Beauty, of good form and substance, and Cypripedium Christopher var. Conyngham (Actæus × Leeanum); from Dr. Craven Moore.

Læliocattleya Serbia var. Gipsy Queen (Lc. St.-Gothard × C. Enid), a huge, well-balanced flower of good colour; from R. Ashworth, Esq.

Læliocattleya Wilps (Lc. Aphrodite alba × C. Warscewiczii Frau Melanie Beyrodt), one of the finest albino forms seen; from P. Smith, Esq.

Cattleya Oberon var. Princess Royal (Fabia × Hardyana), a well-set flower of even colour, with large highly-coloured lip; from W. R. Lee, Esq.

AWARDS OF MERIT.

Cattleya Fabia var. Conyngham, Læliocattleya Zena (Lc. Ophir × C. iridescens), Odontoglossum Exworth (eximium × Aireworth), and O. illustrissimum King Ferdinand; from Dr. Craven Moore.

Cattleya Adula var. aurea, C. Corona alba (Mantinii × Hardyana), C. Corona var. Mars, and C. Drapsiana var. Ruby (Pitt × Dowiana aurea); from P. Smith, Esq.

Cattleya Fabia Grenadier, and Cirrhopetalum Rothschildianum Ashlands var.; from R. Ashworth, Esq.

Brassocattlælia Maroniæ Carter Place var., and Cattleya Hardyana Carter Place var.; from Tom Worsley, Esq.

Odontoglossum crispum var. Ilonka; from W. R. Lee, Esq.

Cattleya Saturn (O. Brieneana alba × Gaskelliana alba); from F. Houghton, Esq.

Cattleya Roumania (Octave Doin × Dowiana aurea), C. Dragon (fulvescens × Fabia), C. Fabia var. Royal (Dowiana aurea × labiata), and C. Oberon Risdene var.; from Mr. Alwyn Harrison.

Cattleya Smith-Dorrien Pleasington var. (Maronii × Mantinii); from T. Butler, Esq.

Læliocattleya Barbarossa var. Colossa (Lc. calistoglossa × C. Trianæ); from Mr. J. Evans.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), for a fine group of choice Cattleyas, Læliocattleyas, Cypripediums, and Odontoglossums, with examples of Oncidium Kramerianum, Cirrhopetalum ornatissimum, and a few others.

Large Silver Medals were awarded to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. Tom Arran); A. Hanmer, Esq., Chester (gr. Mr. Palin), and Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups of the Orchids of the season.

Silver Medals were awarded to Mr. Alwyn Harrison, Sharnbrook, and to Messrs. Keeling & Sons, Bradford, for good groups.

Interesting exhibits were staged by F. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); W. R. Lee, Esq., Heywood (gr. Mr. C. Branch); F. Houghton, Esq., Appleton (gr. Mr. W. Maddock); Col. C. J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton); T. Butler, Esq., Pleasington; Messrs. Stuart Low & Co., Jarvisbrook; Messrs. Sander & Sons, St. Albans; Messrs. J. & A. McBean, Cooksbridge; Messrs. Hassall & Co., Southgate; Messrs. John Cowan & Co., Gatacre, Mr. John Evans, Lymm, a number of which appear in the above list of Awards.

ORCHID NOTES AND NEWS.

TWO Meetings of the R.H.S. will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The last meeting of the year is fixed for December 5th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on November 2nd and 16th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for December 7th.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

E.W.T.—The Odontoglossum is either a form of O. Thompsonianum or a very closely-allied hybrid. The former is very variable, probably because some of the forms of O. crispum used are themselves of hybrid origin. Cattleya Bowringiana concolor is, we believe, correct. The variety liiacina was originally described as mauve-lilac, and the two are recognised as distinct.

BETA.—The question is very fully dealt with on pp. 262-264.

R.J.—Cattleya seedlings with both white and coloured flowers have certainly appeared out of the same seed-pod, but whether there are cases where both parents were coloured we do not remember at the moment. Some of our readers may be able to give the required information. The parentage in such cases is not always recorded with certainty.

The Orchid Review

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OUR NOTE BOOK.

THE question of the production of albinos from coloured parents (see p. 259) has taken an interesting form. At the R.H.S. meeting held on November 7th forms of Cattleya Pretoria and C. Pretoria alba, the former with purple, the latter with white sepals and petals, were exhibited from the collection of R. G. Thwaites, Esq., and Mr. Thwaites informs us that both were derived from the purple C. Peetersii crossed with C. Dowiana aurea, and that he has other whites from the same cross. Messrs. Sander & Sons also exhibited Cattleya Maggie-Raphael var. albo-rubens, with white sepals and petals and a coloured lip, and they inform us that it flowered out of a batch of coloured seedlings from dark parents. These are fairly parallel cases to that of C. Corona alba, for both parents of the latter were half derived from C. Dowiana aurea. And the curious tendency of the latter of reverting to white when crossed with purple is also illustrated by examples of C. Prince-John that have appeared.

And there are cases where C. Dowiana aurea is not involved, for we may recall the beautiful Læliocattleya Fascinator-Mossiæ var. Moonlight, which flowered in a batch of coloured seedlings with Messrs. Charlesworth, and received an Award of Merit from the R.H.S. at the Holland House Show in 1915. The parents were Lc. Fascinator × C. Mossiæ Reineckeana, and the seedlings also included coloured varieties and forms with white sepals and petals and a coloured lip.

An interesting case of the production of a white where one parent only was coloured was exhibited at the last R.H.S. meeting by Messrs. Charlesworth, namely, Brassocatlælia Thompsonii, derived from Brassocattleya Veitchii crossed with C. Gaskelliana alba. It is the first seedling to bloom, and is pure white with the usual yellow disc to the lip.

As for reversion from white parents, Messrs. Charlesworth inform us that in a batch of C. Suzanne Hye de Crom (Gaskelliana × Mossiæ Wageneri) they obtained both pure white and pale mauve-coloured forms.

DENDROBIUM SPECIOSUM: SPECIMEN PLANT.

(*See Frontispiece*).

THE frontispiece to the present volume represents a magnificent specimen of Dendrobium speciosum, growing on the branch of a tree in the open air, in the garden of J. J. Cribb, Esq., of Brisbane, and bearing sixty-three spikes of flowers, forming a fine display. The species is a native of Queensland and New South Wales, where it is known as the Rock Lily, and this specimen may be said to have been grown under native conditions. Dendrobium speciosum was the earliest known of Australian Orchids, and was originally introduced by Sir Joseph Banks in 1801. The species is rather variable, and the flowers range from ivory white to light yellow in colour, with dusky spots on the lip.

CYPRIPEDIUM NITENS WITH FREE LATERAL SEPALS.—A remarkable Cypripedium is sent from the collection of Mrs. W. Campbell, Upper Gatton Park, Merstham, by Mr. G. W. Hillier, who remarks that it was purchased at Messrs. William Bull & Sons' Sale among a lot of seedlings. The parentage is unrecorded, but it has all the characters of a fine C. nitens, which marks its decent from C. insigne and C. villosum. Its anomalous character lies in the free lateral sepals, which are spreading, 1½ inches broad, and well-spotted with brown on a light green ground. It will be interesting to see whether the peculiarity is constant.

ONCIDIUM VARICOSUM.—Three distinct forms of the variable Oncidium varicosum are sent from the collection of Richard Ashworth, Esq., Newchurch, by Mr. W. Gilden. One, which may be regarded as fairly typical, has bright flowers of moderate size; a second is pretty similar in size, but has the colour deep golden yellow, of a rather unusual shade; the third is var. Rogersii, a very fine form, with a lip nearly 2¼ inches broad. They form a very interesting little group.

ABNORMAL CATTLEYAS.—Apropos to your article on Abnormal Cattleyas (pp. 260-261), I am sending a flower of C. Enid which seems to be just half a flower. It is a curious form of abnormality, and there is no apparent reason for it, the growth being a normal one and strong.—R. WINDSOR RICKARDS, Usk Priory, Monmouthshire.

[The comparison with half a flower is admirably descriptive, for the left hand side is quite normal, and this side of the lip very richly-coloured, and with the usual yellow markings on the disc. The other side of the lip, however, might have been cut away down the centre and replaced by half

an ordinary petal, the shape, texture, and colour being equally exact, while the lateral sepal and the angle of the column on the same side of the flower are missing. The anther and pollinia are normal. The peculiarity seems to be due to the suppression of one of the vascular bundles, and is probably accidental.—ED.]

AN ORCHID FUNGUS.

A PARASITIC Orchid Fungus that was found on a species of Oberonia has been sent to Kew for determination from the Royal Botanic Garden, Glasnevin, and Sir Frederick W. Moore remarks that he has seen it several times before, and that it is very injurious. It takes the form of small dark pustules, from which, on reaching maturity, small orange-coloured spore-masses escape, which, under a lens, somewhat resemble minute elongated grains of sand. It has been identified by Miss Wakefield as Colletotrichum Orchidearum, Allesch., a species described some fourteen years ago from specimens found on various Orchids in a warm house in the Munich Botanic Garden. Forms are recorded as occurring on Cymbidium pendulum, Physosiphon Loddigesii, and Eria stellata, these being distinguished respectively as forma Cymbidii, Physosiphonis and Eriæ, but as the Glasnevin example occurs on Oberonia it is doubtful if these names have any significance. The wild source of the fungus appears to be doubtful.

Six other species of Colletotrichum have been described as parasitic upon Orchids, namely, C. Vanillæ, Scalia, found on Vanilla "odorata"—presumably V. planifolia—in the Botanic Garden of Catania, Sicily; C. roseolum, P. Henn., found on dead pseudobulbs of Stanhopea oculata in the Berlin Botanic Garden; C. Dichææ, P. Henn., found on Dichæa at Berlin; C. effiguratum, Syd., found on Paphiopedilum Roezlii at Berlin; C. macrosporum, Sacc., found on the leaves of epiphytic Orchids in Brazil; and C. Orthianum, Kostlan, found in the Orchid house of F. Bluth, at Berlin. This latter is said to have occurred on Cypripedium insigne, Cœlogyne cristata, Dendrobium nobile, and Vanda cœrulea, and is the subject of an elaborate monograph with three plates, which we have not seen. It is said to be marked by the variability of its spores, and Magnus in a notice of the paper (*Bot. Centralbl.*, xcix., p. 423), suggests that both this and C. roseolum are probably the same as C. Orchidearum.

It would be interesting if Orchid growers would keep a watch for additional materials, particularly on recently imported plants, and forward any that they may observe, for it is pretty clear that our knowledge of the subject is still very imperfect.

R.A.R.

THE GLYMPTON COLLECTION OF ORCHIDS.

AN AMATEUR'S COLLECTION.

WHEN speaking to the Editor some time ago, I remarked that in the north of England there were many "keen" amateurs, and that some of their collections were most creditable. He replied that he would much like an account of some of them, and the matter ended with my promising a few notes. Hence the following, and for the purpose of the article I must give my definition of an Amateur as a gentleman growing Orchids without the assistance of a regular gardener.

I recently had the pleasure of visiting Frank Burton, Esq., late of Blackburn, now of Glympton, Blackpool. Mr. Burton has been growing Orchids for eight years, and for some time before he commenced he was fascinated, but was kept back by the general idea that they were very expensive and difficult to manage. This idea being dispelled, he built a small house, 12ft. by 8ft., that registered a temperature of 40° to 55° in bad weather.

Cool house Orchids were the objective, and he commenced with Odontoglossums; crispum, grande, Edwardii, Uroskinneri, Pescatorei, and triumphans, some dozen or so plants being his first trial. They did very well, and he added more plants, particularly of O. crispum and Pescatorei. His interest grew, and he put up a further house, 6ft. by 8ft., which, by the way, he was able to keep a few degrees warmer. He then tried a few mixed things, Cattleyas and the warmer-growing Cypripediums, which, however, did not flower to his satisfaction. He had difficulty in keeping the house up to 60° in severe weather, and he admits that he was advised not to try the Cattleyas in this house, but was so fascinated with this showy section that he was willing to risk a few plants to gain experience.

As Cattleyas would not do in this section, he gave Oncidiums a trial, adding O. Forbesii, tigrinum, varicosum Rogersii, concolor, Gardneri, &c. They were soon found to be suitable for the house, and I have seen for several years splendid results. As to O. tigrinum, I have never seen better, they carry big strong spikes every year. The others do very well, with the possible exception of O. varicosum Rogersii, which, after a year or so, appears to deteriorate. This is a general experience, possibly because its large handsome spikes of yellow flowers are left too long on the plant, or that insufficient care is taken of the aerial roots. The Mexican Odontoglossums did well in this house, O. Rossii majus flowering regularly and very profusely.

At this period his plants were making rapid strides, and he had to build another house 16ft. by 16ft. Stages were placed all round, leaving a nice

central place for a seat, and many is the hour he has spent with a nice show of bloom before him. What could be better for a business man's hobby? This last house he adapted for a larger cool house, and was able to accommodate Cymbidiums, adding Lowianum, eburneum, Tracyanum, &c.

He had now acquired such confidence that he commenced to buy some of the best Odontoglossum hybrids, with the result that the collection to-day contains some very choice subjects, O. crispum Rosy Dawn, a fine blotched form, O. ardentissimum Burtoniæ, of fine shape and almost self-coloured violet shade, O. ardentissimum Mrs. R. Le Doux, O. amabile Glympton variety, of fine shape and with rich violet markings, some fine O. percultum, many first-rate plain crispums, some fine Odontiodas, and most of the up-to-date hybrids. From unflowered seedling Odontoglossums purchased he has flowered several very superior varieties. Some choice Cymbidiums have also been added, as Holfordianum, Wiganianum, &c.

A few months ago Mr. Burton removed to Blackpool, where he has built a smart compact range of houses, consisting of an Odontoglossum house, 32ft. by 16ft., a small house of seedling Odontos, 16ft. by 6ft., and a warm house for Cattleyas and Cypripediums, 20ft. by 16ft., with a nice potting shed and roomy stokehold. It is a very smart range of houses, built after his own ideas. In all he has now some 500 plants, a fair responsibility for a busy man, or so one might imagine, but Mr. Burton does not in the least find his task irksome, in spite of the fact that he is mostly at business from 9 a.m. until 7 p.m. In fact, after a busy day he finds an hour or so in the greenhouse a tonic.

And now for a few words about cultural routine. Before leaving home in the morning Mr. Burton damps down and gives a syringing overhead, varying it in intensity according to the weather. If home at noon, particularly in hot weather, he gives another spraying overhead. Watering is done chiefly at the week end, with a look over for dry plants in the middle of the week. In dull weather the Odontoglossums stand ten to fourteen days without water.

His sectional boiler is very economical, and lasts well after attention. This, under ordinary circumstances, is given in the morning, and the fire lasts until Mr. Burton's return in the evening; but in very severe weather the maid gives attention about noon. During the summer the fire is allowed to go out; in fact, from early May to September fire heat has not been used.

For shading Mr. Burton uses lath roller blinds, and in summer he puts these down before leaving home, and they are left down for safety. Mr. Burton is a great believer in air, and in the warmer months the ventilators are continually open, while in the Cool house the bottom ventilators are never closed, even in severe weather. As to results, it may be said that the

happy condition of the plants indicates that the treatment suits them, for they make strong growths and give good flower spikes.

When Mr. Burton desires a holiday he obtains the services of a local gardener, who looks in before breakfast and again in the evening, carrying out the usual routine according to instructions given.

Although Mr. Burton's plants have only been at their new quarters a few months, they show signs of beating his efforts when at Blackburn. Successes with Cattleyas and hybrids of this section is now assured. At the time of my visit he had several showy hybrids out, including a very fine Cattleya Venus. In propagation by division he has been most successful, and has many duplicates of his good varieties.

His love of plant life and keenness of observation have no doubt served him well, and that he gets considerable pleasure from his hobby goes without saying. At the time of my visit he had quite a fine display, including a blaze of Oncidium tigrinum, Forbesii, O. macranthum covered with flowers on a spike of seven yards length, and many Odontoglossums.

There are many amateurs in the North, with collections perhaps not as large as Mr. Burton's, but equally keen, and it is a real pleasure to visit them.

Asked to give a few few points, gathered from his experience, that might assist beginners, Mr. Burton mentioned the following:—

Get an idea of the temperature required in the house, and maintain this as regularly as possible, studying also the question of ventilation and atmospheric moisture.

Consult one of the trade firms as to which section is likely to suit the house, and if ignorant of the different species, allow them to make the selection. Plants of nice subjects can be purchased at 2s. 6d., 3s. 6d., 5s. each. Avoid buying exhausted rubbish, no matter what the price.

If possible visit an Orchid Nursery, for growers are always willing to give information, and one gets the same treatment when spending shillings as when later buying more expensive plants. A visit to the Shows is instructive, but do not come away disheartened, but remember that the plants shown are the selected plants of thousands.

Treat the plants as plants, not as delicate subjects that you are afraid to water or disturb, and in the case of the cool section watch closely the summer months, shading and ventilating freely and keeping the house as cool as possible.

Potting is best done in the autumn or spring, the period when most species show signs of root action. As a rule plants will stand for two years after potting. Potting materials can be obtained from the growers, who are willing to show one how to pot a plant. It needs only a single illustration.

Keep your pots clean, and sponge the plants occasionally with insecticide. Avoid herbaceous plants too near the house, as they breed thrips, which blow in. If thrip is troublesome, it is necessary to spray with insecticide or fumigate the house.

Finally, never be backward in asking for information. Orchids are not difficult to grow when once on the right track, and this is not difficult to find when the facilities indicated are so freely open. W.

VANDA CŒRULEA AT ASHTEAD PARK.

SEVERAL fine examples of Vanda cœrulea have recently bloomed in the collection of Pantia Ralli, Esq., Ashtead Park, Epsom, the strongest spikes bearing from fourteen to eighteen richly-coloured flowers, and about forty other plants are now producing flower-spikes, promising a fine display in a few weeks' time. Their thriving character was mentioned in an account of the collection given in our June issue (p. 140), and we are now able to give a few details of the method of culture.

The house in which they are grown is quite a small structure, span-roofed, having only two lights on each side of the roof, and well ventilated at both top and bottom. Altogether there are about 100 well-grown sturdy specimens, the majority having been grown from small imported pieces. The plants are arranged on an open wood-work staging, and quite near to the roof glass, where they can obtain plenty of light and air, two elements which are essential in keeping the plants healthy and free from the well-known "spot" which is so prevalent on this particular species, especially during the autumn and winter months. During the cold weather the temperature ranges between 50° and 55°, but during severe frosts and exceptionally cold winds the thermometer is occasionally down to 45°.

An important matter appears to be the careful watering of the plants. During the growing season, each individual specimen is only watered when it becomes thoroughly dry, when a good soaking is afforded, and when the plants are at rest, that is from October to March, they are kept well on the dry side. During the winter months the atmosphere of the house is at all times kept in a comparatively dry condition. The plants are potted firmly in coarse, well-drained osmunda fibre, and to see the large number of fine healthy roots, which all the plants possess, indicates that they appreciate this kind of compost. Cockroaches are particularly fond of the tender succulent points of the young roots, and these insects, if not assiduously sought after and destroyed, will soon diminish the vigour of the plants, and often prevent even strong specimens from flowering.

ODONTONIA ELWOODII.

IN an earlier issue (pp. 168, 169) we figured examples of the hybrid genus Odontonia, namely, O. Lairesseæ and O. Magali-Sander var. xanthotes, showing the preponderating influence of Miltonia Warscewiczii. The present figure shows the very different O. Elwoodii, the effect of crossing Odontoglossum cirrhosum with M. Rœzlii alba. It was raised by Messrs.

Fig. 50. ODONTONIA ELWOODII.

Charlesworth & Co., and flowered for the first time in February, 1907. In the long acuminate sepals it recalls the character of the seed parent, whence the spotting was derived, while the lip shows rather more of the Miltonia character. The colour of the flower is white with purple spots. A good many other Odontonias have since appeared, and the finest of the

series is O. Charlesworthii, which Messrs. Charlesworth obtained by crossing Odontoglossum Uroskinneri with the pollen of Miltonia vexillaria. Other remarkable things are O. Cholletii, raised by Messrs. Sander & Sons from Odontoglossum Harryanum × Miltonia vexillaria, and O. brugensis, from O. Edwardii × M. vexillaria. It is a genus of which more is likely to be heard in the near future.

CALENDAR OF OPERATIONS FOR DECEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

WE have now reached the shortest month of the year, and as daylight is scarce the cultivator must be satisfied to move slowly, remembering that nature is never in a hurry. Plants that are growing should be encouraged to make slow and sure progress, whilst those at rest should remain in that state until the return of more genial conditions.

TEMPERATURES and other conditions should remain as advised in the two previous Calendars, care being taken to avoid an overheated atmosphere. Too much atmospheric moisture at this season is most injurious, as is easily realized when one remembers that most Orchids in their native habitats rest during the dry season, and make their growths during the rainy one. Nature has a reason and purpose for everything, and if her laws are ignored the cultivator will soon find his plants in a bad way or failing to bloom satisfactorily.

We can now take stock, so to speak, of the season's work, comparing the results with previous years. Personally, I am well satisfied with the results attained, although many may think that, through lack of sunshine, the season has been far from an ideal one. It is our misfortune to have to deal with a changeable climate, but it is not without its advantages, as it necessitates vigilance and prevents us from taking unnecessary risks.

CALANTHES of the vestita and Veitchii section will now be in bloom, and if it is desired to keep them over the Christmas season, the plants may be removed to cooler quarters as soon as two-thirds of the flowers are open. They will need little water, but when the flowers are faded, or the spikes cut, they should be placed in a light position in a warm house to consolidate the bulbs. They require a thorough rest, during which period no water should be given. The later-flowering C. Regnieri and others, now pushing up their flower spikes, will require watering with care until the flowers are fully matured.

MILTONIAS of the vexillaria section, including the hybrids, are now in active growth, and, like all plants that grow during the winter, require all the light possible. They are best elevated to within a foot of the glass, in

a moderately damp position in the warm Cattleya house. Water should now be applied with extreme care, and they should be allowed to get dry between each operation. Should black thrip, their greatest enemy, attack them, it is a sure indication that the atmospheric conditions are not to their liking, and plants growing under unnatural conditions are more liable to be infested with insect pests or other diseases. Weak plants will often throw up their young leaves enfolded together, and these must be carefully liberated, or the new growth will be deformed. The sheath at the base of the young growth will often hold water, and if unattended to may be the means of the young growth decaying. Such sheaths are best removed as early as possible.

MEXICAN LÆLIAS.—Lælia anceps and its varieties are indispensable where flowers are required in quantity at the festive season. The varieties are well known, and the typical form is acceptable as a cut flower at this season. The beautiful L. autumnalis and its lovely white variety should also be included. These require water in moderate quantities until their flowers are fully open, and after flowering water may be almost withheld, but under no consideration must the pseudobulbs be allowed to shrivel. The plants may be repotted in the spring whenever root action becomes active. They succeed in the Mexican or cool Cattleya house temperature whilst in bloom, and require a dry atmosphere at this season.

CATTLEYAS AND ALLIES.—With Cattleya labiata and its varieties over, we have to depend upon the many fine hybrid Cattleyas, Læliocattleyas, and others which produce their flowers at this season. Little water is now required. Cattleya Warneri, which flowers in the spring, will soon be showing signs of activity by pushing roots and growth freely. They should be placed in a light position, well up to the glass, and receive water whenever they become dry. Those in need of new material may have attention whenever the new roots are observed to be pushing from the rhizome. Other plants in the Cattleya house which are in various stages of growth, including Lælia crispa, purpurata, tenebrosa, and many others, must be watered with discretion at this season. Lælia harpophylla, whilst in full growth, and until the flowers are past, will require water whenever it becomes dry, when much less will suffice, and the plants should be induced to rest by placing them in cooler quarters.

LÆLIA PUMILA, and other plants which succeed in the Cool house during the summer months and the Cool Intermediate house during the winter, may be repotted, if necessary, as they pass out of flower and root action commences. They delight in small shallow pans, small quantities of potting material, and only sufficient water to keep them plump and healthy until growth becomes vigorous.

CYPRIPEDIUMS will now be flowering in quantity, and a house of the

best varieties, if well grown, is a fine sight. Considering their lasting qualities, the ease with which they are grown, and their general usefulness, one need not wonder at their popularity. They are never inactive at any season of the year, therefore should never be allowed to remain dry at the root for any length of time, or much harm may accrue. During winter much less water will suffice than when in active growth, but a certain amount of moisture is necessary in the atmosphere at all seasons. After the flowering season of each respective variety they may be repotted, and the stronger the plants are grown the finer will be the flowers.

ZYGOPETALUM comprises some useful plants, of a colour which is sparsely represented in our collections. The best known is the old *Z.* Mackayi, which generally does best under warm conditions. At this season this particular species is growing freely, and sending up strong spikes of bloom. When the flowers are past, or the spikes are cut, the plants may have attention, should repotting be necessary. Being a deep-rooting subject, plenty of pot room and a good depth of compost is necessary, therefore the pots should have only a moderate depth of crocks. A mixture of good turfy loam and osmunda fibre, with plenty of small crocks mixed in, forms a suitable compost. With the exception of this and the rare *Z.* Burkei, other species and hybrids succeed under the cooler conditions of the Intermediate house. They should be repotted soon after growth commences, in a similar compost to that advised for *Z.* Mackayi, and water must be carefully given until they have freely entered the new material.

ODONTOGLOSSUMS comprise plants now in full growth, as well as some at rest. The latter should be placed by themselves, where they may receive only sufficient water to keep them plump and healthy. The former should have every encouragement to make fine and healthy growth, and care must be exercised to prevent a check of any sort. Plants of O. crispum and the many hybrids should be watched assiduously for slugs, which are prone to feed on the young flower spikes, often as soon as they are observable at the base of the pseudobulbs.

ONCIDIUMS.—Among the Oncidiums the dwarf yellow-flowered O. cheirophorum is now in bloom. Like all members of this genus, it must not be overburdened with compost about the roots, a very thin layer being all that is required. This charming plant succeeds when grown in the Intermediate house. The old, sweet-scented O. tigrinum is also in bloom, and, when well-grown, is a most showy and useful plant. It succeeds in the cool Intermediate house, and when grown in quantity is a valuable subject to produce flowers at a season when there are never too many. After flowering the plants must be induced to rest, when only sufficient water must be given to keep the pseudobulbs plump.

VANDAS.—Vanda teres and V. Hookeriana have now completed their

season's growth, and the points of the roots are now sealed over. These Orchids require a long season of rest, and, owing to their terete leaves, are able to withstand drought. During their period of inactivity water should only be afforded in sufficient quantities to prevent much shrivelling of their peculiar foliage. A warm Cattleya house will suit them admirably whilst at rest. V. Amesiana, V. Watsonii, and V. Kimballiana are very distinct and beautiful Vandas, and as winter-blooming subjects are most useful and beautiful. The general conditions observed in the cultivation of these terete-leaved Vandas is all that is necessary.

GENERAL REMARKS.—The general cleaning of the houses and their contents comprises the principal work for the present month. No time should be lost in this essential matter, as, with the New Year, other matters soon become pressing. There may be difficulties with so many of our younger members of the profession away, engaged on sterner business, but the health of the plants must not be neglected, and when the time comes that peace and goodwill reigns over us again may absent members be able to resume their peaceful avocations. This is the earnest wish with which I will close my remarks for the present year.

SOCIETIES.

ROYAL HORTICULTURAL.

AT the fortnightly meeting, held at the Royal Horticultural Hall, Westminster, on November 7th, there was a good display of Orchids, and the awards consisted of four medals and four awards of other kinds.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, H. J. Chapman, C. J. Lucas, W. H. White, C. H. Curtis, H. G. Alexander, J. Cypher, J. Charlesworth, W. Cobb, T. Armstrong, E. R. Ashton, A. McBean, Pantia Ralli, F. J. Hanbury, R. G. Thwaites, J. Wilson, Potter, and R. A. Rolfe.

FIRST-CLASS CERTIFICATE.

CYPRIPEDIUM MRS. HILARY JENKINSON (Troilus × alportense).—A very large and well-shaped flower, having a broad white dorsal sepal, blotched with brown on the yellow-green basal area, the spots becoming purple and smaller in size on reaching the white, the petals spotted with brown on a yellow ground, and the lip suffused with the same colour in front. Exhibited by R. Windsor Rickards, Esq., Usk Priory, Monmouthshire.

AWARD OF MERIT.

CYPRIPEDIUM A. J. H. SMITH (niveum × Hera Euryades).—A charming thing, most like a greatly enlarged edition of the former, with densely spotted purple lines on the lower half of the dorsal sepal, and with similar

colour on the upper halves of the petals, the front of the lip and the staminode. Exhibited by Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman).

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM GENERAL CADORNA (Ossulstonii × King Emperor).—A very promising thing, the flower being of model shape, the sepals and petals covered with nearly confluent reddish claret blotches, and margined with primrose, and the lip white, with a yellow crest and purple blotches. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

ODONTOGLOSSUM PERCULTUM.—To Mr. Redden, gardener to G. W. Bird, Esq., West Wickham, Kent, for a magnificent specimen, bearing a branched inflorescence, nearly five feet high, with thirteen side branches and eighty-four flowers, well-blotched with purple on a white ground.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a choice group, including Læliocattleya Goliath (Lc. George-Woodhams × C. Enid), with rosy lilac sepals and the lip rich purple throughout, Lc. Epicasta Glorita, a noble form, Lc. Wellesleyi splendens, with a spike of four flowers, and Cattleya Gatton-Ruby (amabile × Hardyana), a fine thing, most recalling a richly-coloured form of the latter parent.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. H. Day), showed Sophrocattleya Annette (S. grandiflora × C. granulosa), with bright red sepals and petals and some yellow on the lip, and Sophrocatlælia Veitchii grandiflora.

R. Windsor Rickards, Esq., Usk Priory, Monmouthshire, sent Cypripedium Aurora (Germaine Opoix × insigne Harefield Hall var.), a fine thing most resembling the former.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent Cattleya Pretoria and var. alba (Peetersii × Dowiana aurea), the latter having white sepals and petals, two C. Bellona alba (Maggie-Raphael alba × Dowiana aurea), with white sepals and petals and a richly-coloured lip, Odontioda Rubia (Odm. Vuylstekei × Oda. Charlesworthii), red-brown with yellow apex to the segments, and Odontoglossum Edna.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including Cattleya O'Brieniana alba, C. Claesiana alba, and C. Saturn, three charming whites, C. Venus, Fabia, Freya, and Maroni, the latter with spikes of seven and five flowers, Lælia pumila alba, raised from seed, Læliocattleya luminosa and others, Maxillaria picta, several good Odontiodas, Odontoglossum Philo (excellens × eximium), and other seedlings, the centre consisting of a fine plant of O. amœnum bearing a tall panicle with nine side branches and 97 flowers (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including good examples of Cattleya Portia and Fabia, two distinct Lælio-cattleya Numidia (C. Empress-Frederick × Lc. Golden Oriole), one having copper-red sepals and petals, and the front of the lip crimson, with yellow veining in the throat, the other lighter in colour, good examples of Lc. Serbia, Salonika and Lc. Britannia var. Melanie, two good Brassocattleya Veitchii var. Queen Alexandra, Miltonia vexillaria Hesperia, and others (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a fine group, largely consisting of choice Cypripediums, with white and purple forms of Dendrobium Phalænopsis, a fine specimen of Miltonia candida purpurea, Catleya labiata, Fabia and Bowringiana, Epidendrum vitellinum, and some graceful sprays of Oncidium varicosum (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a brilliant group, the chief feature of which was a series of fifty plants of Cattleya Fabia alba (Dowiana aurea × labiata alba), all having white sepals and petals and richly-coloured lips. We also noted some coloured C. Fabia, C. Maggie-Raphael albo-rubens, having white sepals and petals, and the lip rich crimson purple, with the disc yellow (a charming thing that appeared in a batch from two richly-coloured parents), C. Katie, Cymbidium Hanburyanum, Brasso-cattleya Euterpe, a fine plant of Lælia Perrinii, Cœlogyne brunnea, and a plant called Læliocattleya aurealis, and supposedly derived from Lælia autumnalis × C. Dowiana aurea, though the parentage requires confirmation. This had light rose sepals and petals, and a large, entire lip, veined with purple in front, recalling C. Lueddemanniana, while the scape was short (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, sent Cattleya Prince-John Low's var., having white sepals and petals, and a crimson and yellow lip.

Mr. C. F. Waters, Balcombe, sent a dark-coloured Cypripedium of unrecorded parentage.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on November 2nd, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden, A. R. Handley, A. Hanmer, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Cattleya labiata memoria Lord Kitchener, a beautiful white flower of good form (a Silver Medal was also awarded), and Læliocattleya luminosa aurea var. Ashworthiæ (L. tenebrosa Walton Grange var. × C. Dowiana

aurea), a large flower, with bright yellow sepals and petals and crimson lip; from R. Ashworth, Esq.

Cattleya Fabia var. Cramore, a well-set flower, of deep colour, and Brassocattleya Nestor var. Cramore (Bc. Maroniæ × C. labiata), a large flower of good form, and the lip with a yellow band across the centre and a light purple base; from Dr. Craven Moore.

Cypripedium Mrs. Hilary Jenkinson (Troilus × alportense), a large, well-balanced flower, the round flat dorsal 3¼in. across, and well-spotted, and the petals 1½in. across (a Silver Medal was also awarded); from R. Windsor Rickards, Esq.

Læliocattleya Serbia var. Princess Patricia (Lc. St. Gothard × C. Enid), a pleasing flower of good size and colour; from J. J. Bolton, Esq.

AWARDS OF MERIT.

Cypripedium Cramore (Gaston Bultel × Dreadnought), C. Christopher var. Cramore; Odontoglossum crispum var. Hamilton and Cattleya Enid var. Conyngham; from Dr. Craven Moore.

Odontoglossum eximium var. Prince of Wales, and Cattleya heathfieldiensis; from J. J. Bolton, Esq.

Brassocattleya Nestor Houghton's var., and Cattleya Fabia Rex Houghton's var.; from T. Houghton, Esq.

Cattleya Alcimeda var. Fair Lady; from R. Ashworth, Esq.

Cattleya Prince John Risdene var. (C. Dowiana aurea × C. Hardyana alba); from Mr. Alwyn Harrison.

CULTURAL CERTIFICATE.

To Mr. E. Rogers for a fine pan of Pleione lagenaria.

Large Silver Medals were given to R. Ashworth, Esq., Newchurch (gr. Mr. W. Gilden), and to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. Tom Arran), for very fine general groups.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), and Messrs. Cypher & Sons, Cheltenham, for fine groups, the first-named consisting entirely of select Cypripediums.

A Special Vote of Thanks was accorded to O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), for a fine group of well-grown Orchids, in which about thirty plants of Dendrobium Phalænopsis were conspicuous, with Odontoglossum grande aureum, Vanda cœrulea, and some fine Cattleyas.

Interesting exhibits were also staged by Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton), F. Houghton, Esq., Appleton (gr. Mr. Maddock), R. Windsor Rickards, Esq., Usk Priory, Monmouthshire, Messrs. Sander & Sons, St. Albans, Messrs. Charlesworth & Co., Haywards Heath, Messrs. Keeling & Sons, Bradford, and Mr. Alwyn Harrison, Sharnbrook, several of which are included in the above list of Awards.

ORCHID NOTES AND NEWS.

THE Royal Horticultural Society's last meeting of the year will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 5th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The first meeting in the new year is fixed for January 16th.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on December 7th and 21st. The Committee sits at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m. The following meeting is fixed for January 4th.

"THE ORCHID REVIEW."—With the present issue the *Orchid Review* completes its twenty-fourth volume, and at a time of exceptional difficulty we appeal for continued and increased support. The peaceful arts are passing through a period of stress, and Orchidology forms no exception, but there is abundant promise of an increased activity when things resume their normal course in, as we hope, the not far distant future. The march of improvement continues, as our pages from month to month testify, and our aim has always been to record the history of passing events, and to maintain the objects for which the work was originally commenced. In this the continued assistance and co-operation of our readers is invited. Short notes or articles respecting events in their collections will be welcomed, also interesting flowers, records of hybridisation, and photographs for reproduction. Finally we hope they will make the work as widely known as possible among their Orchid growing friends.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

R.S.—The disc of an Orchid lip is the central or basal-central part, which usually differs in some detail of texture or colour, as in the presence of keels or papillæ, or in being yellow as in albino Cattleyas. These modifications are due to staminodial influence, and illustrate the fact that the lip is a compound organ, representing the union of two or sometimes three stamens of the inner staminal whorl with the median petal.

A.G.—Pterostylis pedunculata, R. Br., and Drosera gracilis, Hook. f., both well-known Tasmanian species, and the latter, of course, not an Orchid. We doubt if this particular Petrostylis has been in cultivation.

ERRATA.

Page 9, fig. 6 ; for Cyripedium Ninos read C. Minos.
Page 92, line 19 ; the name Dendrobium Ashworthii was accidentally omitted.
Page 134, line 20 ; for O. The Don read C. (*i.e.* Cypripedium) The Don.

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